THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXX. NEW YORK, SATURDAY, JANUARY 16, 1897. No. 3

ORIGINAL ARTICLES.

THE MODERN ASPECT OF TUBERCULOSIS.[1]

BY H. ARROWSMITH, M.D.,

OF BROOKLYN, N. Y.;

LARYNGOLOGIST TO THE HEBREW ORPHAN ASYLUM; LATE ATTENDING PHYSICIAN TO THE BROOKLYN HOME FOR CONSUMPTIVES.

IT is a reasonable assumption that, at this period, Koch's bacillus has a definite status, in general acceptation, as *the* factor in the direct etiology of all tuberculous diseases. It has satisfied every condition of proof that can be demanded, in that it conforms to the requirements of the formulated proposition to demonstrate that a given disease is caused by a specific organism: (1) It is present in all cases of the disease, and in such distribution as will explain the lesions. (2) It can be isolated in pure culture. (3) The disease is reproduced by inoculation with the isolated organisms.[2]

It may not be an entirely unprofitable task to review (though necessarily very briefly and superficially) the changes in the aspects of tuberculosis which have followed as direct results of Koch's discovery, and perhaps to indulge in a little speculation as to future prospects. We are still apparently a considerable distance from our goal—the ability to prevent the propagation of tuberculous disease and the means of treating it successfully when it occurs; but unquestionably a very distinct advance in our understanding and methods has been made. The investigations, of which the identification of the bacillus was the starting point, have at least demonstrated the fallaciousness of many older views and methods, and have given, if not definite results, at least most valuable indications of hygienic, therapeutic, and clinical possibilities which will, beyond doubt, work radical changes in the destinies of humanity.

There has been a great deal of diversity of opinion as to the exact rôle of heredity in relation to tuberculosis. Much importance has always attached to the transmission from parent to offspring of predisposition to tuberculous disease. To quote Billings,[3] "In most of the so-called hereditary diseases, that which is transmitted from parent to child is not the disease itself, nor its direct specific cause, but some peculiarity of tissues or organs which, in the course of development, either makes the person peculiarly susceptible to causes of disease acting from without or produces disorder itself by excess or defect of structure or function of some particular part. In scrofula, and in consumption and other forms of tuberculosis, the specific germ is very rarely, if ever, transmitted, inheritance giving only a special susceptibility to its action." Recent investigation seems to indicate that this view will be modified by further research, for tubercle bacilli have been found in seminal fluid by several observers,[4 5 6] and tuberculosis produced by inoculation of cultures made therefrom. The possibility of direct paternal transmission is slight, however, having been estimated at one chance in 22½ millions by one observer, taking into consideration the fact that impregnation usually takes place through the agency of one spermatozoid.[6]

Armanni succeeded in infecting a guinea-pig with typical tuberculosis by inoculation with the organs of a still-born child of a tuberculous mother.[7] Lehmann[8] reports the case of an infant of a tuberculous mother dying four days after birth with tubercles containing bacilli in the spleen, lungs, and liver. Tuberculosis of the placenta has been studied and described by Schmorl and Kockel.[9] In three cases observed, bacilli were found in the placenta, but in only one of them in the organs of the fetus. Bar and Rénon[10] demonstrated bacilli in the blood of the umbilical veins of children born of tuberculous mothers. Northrup reports a probable case of congenital tuberculosis examined *post-mortem* by him at the New York Foundling Asylum. General disseminated tuberculosis was found, and apparently the oldest mass was at the porta of the liver.[11 12] Congenital tuberculosis in cattle has been observed not infrequently. What has been rather indefinitely known as scrofulosis is practically conceded to be tuberculosis, and that this condition is frequently congenital almost everyone will admit. A very interesting monograph, by Suchanneck of Zürich, which has appeared recently,[13] brings the subject of scrofulosis, in its relation to disease of the respiratory system, up to date; and he makes no distinction between it and tuberculosis.

The acquisition of tuberculous disease may take place through the integument by immediate inoculation of the poison on an abraded surface. Such processes are generally local, and instances are more or less familiar to us all of lesions which have occurred in our own persons, or in others who are exposed to frequent contact with infected material in

[1] Read before the Kings County Medical Association, October 13, 1896.

the line of pathological or clinical work. Collins and Murray report three instances of infection by tatooing.[14] By some French authorities the ordinary bedbug is alleged to be an active agent in the transmission of tuberculosis. General infection is sometimes produced in this way, however, for Lehmann [15] speaks of ten boys who were circumcised by a tuberculous operator (who died from the disease shortly afterward). The wounds were infected by his saliva, and general tuberculosis and death supervened in seven instances, and three of the boys were living with tuberculous adenitis at the time of his report.

Tuberculosis of the cervical glands has been caused by infection through the means of carious teeth. The disease has been also directly transmitted by the act of coition. Infection by the way of the alimentary tract has been held by some writers to be the most usual of all the possible ways. It occurs from the ingestion of intrinsically diseased milk or meat, or of food which, though originally pure, has become accidentally contaminated by the bacilli. The results of investigations as to the existence of tuberculous disease in cattle furnishing our ordinary milk-supply, as well as the frequency of the lesions in those slaughtered for meat, are, to say the least, startling, and in this connection, if in no other way, Koch's tuberculin has been of enormous utility in permitting the identification of diseased animals with practical certainty. The literature bearing on this special feature is so extensive already that in a paper of this kind it will be impossible to review it in even the most cursory manner. The entire subject of milk infection has been dealt with by Professor Ernst,[17] under the auspices of the Massachusetts Society for the Promotion of Agriculture. He found that bacilli are sometimes present in the milk of cows having no demonstrable lesion of the udder. This was determined by microscopic examination, as well as by inoculation experiments, and he also observed that feeding infected milk to animals caused tuberculous disease in a certain proportion of cases. Brush [18] alleges a direct and constant relationship between human tuberculosis and the use of dairy products as regular articles of diet. He shows in a way that is almost convincing that tuberculous disease is infinitely more common in communities where cattle are bred for dairy purposes than in those countries where their products are not used in this way, as, for instance, in Argentina, where, although there are in the neighborhood of twelve million head of cattle, no butter or cheese is produced, and where such a thing as a dairy farm is unknown. The indigenous population is practically immune. Roth of Zürich has found virulent tubercle bacilli in butter, in two out of twenty specimens examined.[19] What has been said of infected cows' milk is inferentially equally true of milk from diseased human beings, although I have no recollection of having seen any statements in regard to this point.

Occupying a position between the alimentary and respiratory systems as avenues of infection is the lymphoid tissue at the upper part of the two tracts. I refer to the tonsils—faucial, pharyngeal, and lingual. It has seemed to me that the facts which have been adduced as evidence of the part they play as starting-points of disease have been misunderstood, or magnified in importance. So-called "latent tuberculosis" of the tonsils was first described in detail by Dieulafoy.[20] He inoculated sixty-one animals with pieces of faucial tonsils, and tuberculous manifestations resulted in eight instances. Thirty-five inoculations with adenoid tissue gave positive results seven times. Lermoyez [21] reports two cases in which removal of lymphoid tissue from the pharynx seemed to give rise to generalized tubercular infection. In a later report he gave the proportion of tuberculosis to simple hypertrophy of the tonsils as one to seventeen; and in a third communication, as one to seventy-five. Schlenker, as a result of one hundred examinations, concludes that tonsillar tuberculosis is generally secondary to pulmonary disease.[22] Brindel of Bordeaux, after examining sixty-four adenoids, claimed to have found tuberculosis in eight, or 12½ per cent. of the cases.[23] Bacteriological investigation was practised in but one instance, and inoculation experiments in none, his diagnosis of tuberculosis resting on the histological discovery of occasional giant cells, which, it is needless to state, are found in inflammatory processes entirely distinct from tuberculosis, so that his results are practically valueless from a scientific standpoint. Chappell's case of general fatal tuberculosis developing after adenotomy,[24] is also assailable on the hypothesis, which from the clinical history seems very possible, that the tuberculosis of the pharyngeal growth was antedated by pulmonary disease. In this case, however, the diagnosis was certain; histological tubercle and bacilli were found and inoculations gave positive results. Several hundred adenotomies and tonsillotomies done during the past two years at the Brooklyn Eye and Ear Hospital have failed to reveal a single instance of tuberculous disease appreciable on *gross* examination. In a paper read this year before the American Laryngological Association, Wright[25] reports from his service at that institution examinations, microscopical, bacteriological, and by inoculation, which gave absolutely negative results in twelve consecutive unselected cases, and he reaches the perfectly logical conclusion that opposed findings have been due, in most instances, simply to surface contam-

ination. This is further corroborated by the experiments of Strauss,[10] who in examining the nasal secretions of twenty-nine perfectly healthy individuals employed in a hospital where phthisical patients were treated, found virulent tubercle bacilli in nine cases.

The respiratory tract proper is probably the most frequent avenue of infection, and Hance's paper[12] on the "Infectiousness of Dust" gives a vivid picture of the ease and frequency with which the germs can be inhaled, and, on the other hand, the gratifying possibilties of simple means of disinfection and ordinary care. His investigations were carried out with great care and thoroughness at the Adirondack Sanitarium and certainly are an admirable object lesson to both the profession and the laity in the management of tuberculous patients. (See also Cornet.[13])

It is claimed by some observers that, irrespective of the channel by which the bacilli have gained entrance to the body, the lymphatic system is invariably affected before the lesions appear elsewhere. Northrup[11] found in a series of ninety-one autopsies made at the New York Foundling Asylum on children affected with tuberculosis, that the bronchial lymphatic glands exhibited signs of disease of apparently longer standing than any of the other organs. In thirteen of these cases the process was distinctly limited to them. Arnold[14] in experiments with reference to inhalations of dust by animals found that after a short inhalation the particles of dust might be identified in the bronchial glands. In inhalations of ultra-marine the particles were found after three hours, and after stopping the inhalations, though the bronchi and alveoli might be quite free of the particles, the glands were full of dust.

Aside from, perhaps, a better interpretation of the rational signs and subjective symptoms, comparatively little advance in the early diagnosis of tuberculosis has been made during the last fifteen years. Much has been written about the "pre-tubercular state"—"hypotrophy" antedating tuberculous processes, etc., but after extensive reading, and a not inconsiderable personal experience, I fail to find any distinctive particulars in which the prodromal stage of tuberculosis differs from that of any other chronic general disease before the characteristic changes have been made out. If certain physical signs can be definitely recognized, we are sure that we are right in our diagnosis, but their absence is by no means of equivalent value as indicating freedom from tuberculosis. Mensuration, as practised by Evans, may be a valuable aid in diagnosis. His method is very thorough, but rather too complicated and requires too much apparatus to be practically useful, except in the offices of specialists, or in institution work. (For full description of his Cyrtometer and Method of Application consult original article.[15])

The administration of tuberculin in the human subject, for diagnostic purposes, has been shown to be unjustifiably dangerous, and has been abandoned. The presence of the bacillus in the sputum, in such numbers and with sufficient constancy as to eliminate the factor of surface contamination above referred to, is of course pathognomonic, but at a time when this is likely to occur the expert diagnostician is usually able to decide on the evidence of the physical signs alone. Of course very many doubtful cases have been settled by bacteriological examination. It is, however, as true to-day as it was before Koch's discovery that we are in no position at any period before the evidences with which we have been long familiar can be made out, to say that our patient has or has not tuberculosis. A new line of investigation has been recently started which may lead to valuable results when its technic shall have been further elaborated and when sufficient experience shall justify reasonably definite deductions from the microscopical appearances. I refer to morphological changes in the blood occurring in tuberculosis. Holmes of Denver[16] has recently published an article on some original studies he has undertaken in this connection, and his paper has been supplemented by one from Denison.[17] Both papers are more interesting than practically valuable, but that in further and fuller observations in this line we may find a reliable means of early diagnosis seems, from what they say, not impossible.

As to prognosis, I think that it can be definitely stated that tuberculosis is at the present time an incurable disease. By this I mean that it is incurable as are also typhoid fever, smallpox, and many of the other specific diseases for which we have as yet found no direct antidote. Probably at least as many patients recover from tuberculous lesions as succumb to them; this is a matter of clinical and pathological experience. I question very seriously, however, whether any form of treatment which has yet been practised has directly modified the tubercular process in the slightest degree. These apparently paradoxical statements I shall try to explain later on.

There is generally present in tubercle a tendency to resolution, and spontaneous arrest of the process and involution of its products occur frequently, apparently entirely irrespective of any attempts at medication. There have been strides during the last decade, if not in treatment at least in prophylaxis, as applied to the community as well as to the individual, which have borne fruit of very distinct character. The appreciation of the methods of propagation has logically brought with it the sugges-

tion of remedies adapted to their requirements. The first systematic attempt at sanitary supervision of tuberculosis was made in New York in 1893, and in spite of much opposition it has already had the result of appreciably decreasing the relative mortality from this disease. The few simple rules of disinfection and individual care necessary to limit the spread of tuberculosis are too generally understood to require elaboration. The circular published and distributed by the New York Board of Health has been of practical use in making clear to the lay mind the characteristics of tuberculous disease, and that the recommendations contained in it have had some effect is evidenced by the decrease in the death-rate from tuberculosis. That the mere suggestion of such simple measures, without any attempt to enforce compliance with them, has been followed by tangible results in so short a time is a most encouraging indication that a more extensive dissemination of knowledge, combined perhaps with a little more latitude and power in the exercise of the functions of sanitary boards, may in time inhibit the spread of tuberculosis to almost the same limit to which the propagation of smallpox is now confined. (For detailed information as to what has already been accomplished in this direction I refer, among a large number, to papers by Biggs and Huddleston,[33] and Hance,[37] and to the report of the meeting of the Section on Public Health of the New York Academy of Medicine, November, 1895.[38]) Radical measures in this direction are impracticable and unwise; results are more likely to be attained by work on educational lines than by direct legislation.

Sanitary supervision of the food supply can and should be conducted in a more vigorous way. The imperative need for strict supervision is shown by the fact that in one year of the cattle slaughtered in Berlin for food 21,000 were found to have tuberculosis. An inspection of the cattle in the kingdom of Saxony showed them to be affected in the proportion of one to seven of the oxen, and one to four of the cows.[34] Similar statistics might be quoted indefinitely, but all show the same facts and teach the same lesson—the enormous prevalence of tuberculous disease among the domestic animals, and the importance of the most energetic and systematic efforts to eradicate it. (See, also, E. F. Brush, "Consanguineous Breeding," etc.[35])

The principles underlying individual prophylaxis are too well appreciated to require more than a passing mention, though, unfortunately, they are rarely carried out as they should be. Proper nourishment, clothing, habits, fresh air, exercise, and the strengthening of weak places and the avoidance of the possibilities of infection, have been written on voluminously.

I shall not enter into a discussion of the treatment of tuberculosis as bearing on the general management, nor in relation to the special symptoms, except in passing. Climate has been always a much-discussed therapeutical resource in tuberculosis, and perhaps no one agent at our command has been so extensively abused, misunderstood and misused. The fact that certain cases of phthisis have improved at special health resorts has in many instances seemed to be a sufficient reason for referring to these localities *all* patients with consumption, entirely irrespective of the character of the disease, its stage, complications, or other features which might modify to a marked degree the effects of the special climatic conditions. The indiscriminate prescription of climatic change, without due regard to the exigencies of the individual case, has probably done more harm, shortened more lives, and destroyed more possible chances of recovery among consumptives, than ignorance or faulty application of any other remedy that has ever been employed in the treatment of phthisis. "One of the chief reasons of the climatic benefits of sea and mountain air is the absence of poisonous and irrirating substances floating in it."[36] That, I believe, contains the gist of the whole question of climato-therapeutics, other things being equal. To generalize, I believe that the ideal climate for the average consumptive is not at any special station nor at any given altitude, but where is found pure air free from contamination, in a reasonably equable, moderate climate, with good drainage, and where the percentage of moisture is approximately normal and not subject to great variation. To such a place there is no rational objection to sending *any* patient who is fit to leave home. I do not question that there have been many recoveries at high altitudes; but many patients have been irretrievably harmed by a residence in them. The contraindications for altitude are sufficiently definite to enable us to select, with fair judgment, the patients who can stand the conditions and who are likely to be benefited. The ideal resort, as I have outlined it above, is most likely to be found, in our country, at a moderate elevation—from 1500 to 2500 feet—and its name is legion. Many climatologists have written about an "Altitude of Immunity." Denison places it in Colorado at an elevation of approximately 6000 feet.[37] It may exist *somewhere*, but probably at a height which is immune from human as well as germ life. That this idea is rather chimerical is evidenced by the fact that one of the observers employed at the Signal Service Station on Pike's Peak, 14,000 feet above sea level, developed *there* a fatal pulmonary tuberculosis some years ago.

That it is a question more of an aseptic atmosphere,

with reasonably favorable prevalent meteorological conditions, than one purely of altitude and rarefaction of the air, can be deduced from the progressive contamination of health resorts. To such an extent has this occurred that I understand that the State Board of Health of Colorado (where are located some of our most popular high-altitude stations) is seriously considering the advisability of placing an embargo on the immigration of any more tuberculous patients, as a matter of self-protection. And in this connection, I cannot help quoting verbatim the following in reference to a once widely known and popular health resort:

"Forty years ago, Mentone was a healthy village in France, where lived peasantry on their farms, happy in their superb physical state conditioned by the climate. It was discovered that the region was a most healing climate for consumptives, and it became the Mecca for the unfortunates of Europe so stricken. The strong, healthy women forsook their dairies and became the washerwomen of the consumptives' clothes. No precautions were taken; the disease was not understood then, as now. The place is to-day bacillus-ridden, a pest-hole—death itself. The hitherto strong inhabitants are emaciated, a coughing, bleeding people, filled with the germs of consumption. The soil and air are both contaminated with them. It is no longer a resort."[38]

J. A. Lindsay[39] tersely expressed the present aspect of the climatic treatment of phthisis in the following words: "Climatic change is a snare, rather than a help, a curse rather than a blessing, if it be regarded as a complete therapeusis in itself and as enabling the patient to dispense with the usual lines of treatment and his customary precautions. Climate is not a specific; at best it is only a condition of cure; and we may expect it to be effectual only when the patient's food, habits, occupation, and mode of life are wisely regulated so as to facilitate its beneficent influence."

In this relation, a word about ozone, of which we hear so much in connection with the beneficial attributes of health resorts. Very little is actually known about it. Most chemists regard it as allotropic oxygen, the molecule containing three atoms of oxygen. It is present in atmospheric air in the proportion of one part in 700,000. "The value of its presence would appear to be more an evidence of atmospheric purity than as a disinfectant, as it is absent when injurious decomposition is going on."[40] Thompson,[40] as a result of his experiments on the action of ozone and its compounds, reaches the conclusion that "ozone is of no value to the tissues, whether inhaled or drunk in fluid preparations, and it may be exceedingly harmful."

Preliminary to a consideration of the direct application of medicinal agents in the treatment of tuberculosis, it is well to realize exactly the conditions with which we have to deal. Here comes in a fact of the greatest possible importance, and a true understanding of it will doubtless furnish an explanation of some of the failures of the past, and indicate the chances of future success. We have been a little too prone to consider that tuberculosis consists merely of the presence in the organism of a specific bacillus and the formation of histological tubercle, and that the subsequent symptoms directly result from this combination. But these conditions do not, by any means, constitute the disease as we see it clinically. Tuberculosis rarely, if ever, runs its course as tuberculosis pure and simple. If it did, we could, perhaps, treat it with more success than we have hitherto attained. Some perversion of nutrition must exist before the bacillus can find a favorable soil for its development, and even then the process of the evolution of the disease, as evidenced by the increasing metabolic changes in the organism, the phthisis would probably be a very much more chronic and less serious matter, were it not for the complication of other bacterial infection. As a matter of common observation, patients rarely feel particularly debilitated, and are much more amenable to treatment before the stage of softening, and this is due to the fact that at this time the influence of other bacteria begins to be a factor in the disease, and becomes after a time the predominating element. Streptococci find in the diseased lung-tissue a fertile soil for multiplication and growth, and as a result we have superadded to the tuberculous process itself a continuously operating source of pyemic and septicemic phenomena which sap the patient's vitality and resisting powers and make him eventually a victim (though generally in an indirect way) to a poison which he might be able to withstand had it come singly.

Here we are tempted to ask ourselves what our present knowledge and the resources at our command warrant us in definitely expecting in the treatment of tuberculosis. As regards *direct, specific* influence on the bacillus, little or nothing (though we may modify this later on); as regards the patient, everything, even up to a condition of relative recovery. Up to the time of the discovery of the bacillus, the treatment of tuberculous disease by means of drugs was symptomatic and very largely empirical. Two of the remedies that were very widely employed in the general routine treatment are still considerably in evidence—the hypophosphites and cod-liver oil. Aside from their general tonic and alterative effects, the hypophosphites of lime and soda have been administered in the hope of promoting or producing calcification of tubercular areas. It is highly im-

probable that they ever assisted in this process to the slightest degree. Cod-liver oil has been administered as a matter of routine in larger quantities than any other remedy. My personal experience has led me to the opinion that it is *very much worse than useless*. The most that I have ever felt justified in hoping from it has been that it would *not do harm*. I have *never* seen it act beneficially. Patients who improve during its administration, do very much better, as a rule, after discontinuing its use. "It acts as an alterative, by changing decidedly the oxidation processes of the system. But, unfortunately, its alterative effects are in the wrong direction, decreasing the perfection of the proteid oxidation and often depriving unfortunate patients of the single chance of recovery which they might otherwise have retained. The free ingestion of it rapidly decreases the urea in the urine, and increases the incomplete or imperfect products of nitrogenous waste. The more perfectly it is emulsified, the more detrimental it becomes, because, thus, it is more palatable, and is less likely to produce digestive disturbance, and to be, therefore, refused entrance to the system. The emulsion also favors the absorption of an immoderate quantity, thus exhausting the oxygen supply and rendering the sub-oxidation of the proteid molecule, with all its ill-effects, doubly certain. It disturbs digestion and prevents the utilization of other and more valuable forms of food stuffs."[41]

Since the identification of the bacillus, every effort has tended toward the discovery of some agent (and a suitable means of applying it) which would directly destroy the germ and aid in its elimination from the organism, or, at least, inhibit its growth and neutralize its toxic influence. William Pepper was, I believe, the first to suggest and practise intrapulmonary injections as a means to attain this end. His method was used quite extensively for a time, but has now been practically abandoned. The results were not striking, the procedure was painful, and it has been displaced by other methods. The injections were made directly into cavities, with the purpose of disinfecting them and acting immediately on the contained bacilli. I have repeatedly seen a marked diminution in the secretion of cavities as a result of these injections, and a consequent improvement in the general symptoms resulting from pus absorption. Injections into tuberculous lung-tissue, which was merely infiltrated and not broken down, have, in my limited experience with this method, produced no benefit.

In 1855 Brainerd of Chicago opened a cavity in a tuberculous lung through the thoracic wall. In 1873 Mosler of Germany opened, drained, and medicated cavities locally. Though surgical intervention in tuberculous disease can be, and is, undertaken today with much greater confidence and chance of success than in former times, the operations of pneumonotomy and partial pneumonectomy in tuberculous disease must necessarily have a very limited field of applicability; ordinarily they are not indicated when the patient is in a sufficiently good condition to stand them, and in advanced cases they are but a forlorn hope at best. The recourse to surgery in diseased conditions is, after all, but a confession on our part of our limitations; and while we are compelled to admire the ingenuity and skill of the modern surgeon, and to be grateful that he can practically atone for the physician's shortcomings, surgical cures of disease are neither more or less than compromises.

Much was expected from the inhalation of antiseptics in tuberculosis. They were used extensively for a time, but have recently fallen into general disrepute. The form of inhaler usually employed has been so entirely inadequate to the requirements that little could be expected from it. The most popular in European countries has been some variety of the ori-nasal respirator, or some equally crude device, and the patient used it perfunctorily and without benefit. The amount of medicament capable of being administered by these means is insignificant, and probably does not reach further than the pharynx. The objections advanced against inhalations are that they do not reach the seat of disease, or, granting that they may, that the amount or concentration of the medicament used is too attenuated to be of value. That these criticisms of the ordinary respirator, or portable inhaler, are perfectly valid is undeniably true, but they can scarcely be advanced in regard to the vaporizing spray-inhalers which are used by many physicians in this country, and particularly when they are employed with some form of compressed-air apparatus, as in Evans' latest inhaler, Waldenburg's gasometer, or the pneumatic cabinet of Williams.

Protracted, continuous inhalation of medicines thoroughly nebulized under high pressure must necessarily bring them into contact with the entire pulmonary mucous membrane. While, of course, a few respirations do not carry the nebulized medicament into the finer tubes or alveoli, after breathing such a vapor exclusively for a length of time the residual air must become impregnated with it. The experiments of Arnold, previously mentioned,[39] demonstrate that dust *does* penetrate to the bronchial glands, and there seems to be no rational refutation of a similar action on the part of any other physical substance in a much more finely subdivided state. As regards the degree of concentration of antiseptics which can be admin-

istered, it is quite possible to give inhalations of a thirty-per-cent. solution of pure carbolic acid, or of the essential oils, like eucalyptol, *without dilution.*

Cough can be controlled and the lungs freed of accumulated secretions much more effectually by appropriate inhalations than by means of any medicines given internally. While there is very little probability that antiseptic inhalations have any distinct effect on the tubercle bacillus, it is quite easy to demonstrate that they do influence, very materially and definitely, the course of phthisis as we see it clinically. They modify or neutralize the effects of pus absorption. A sufficiently long inhalation will reduce a pyemic temperature almost as promptly, much more lastingly, and with infinitely less general depression than any of the antipyretic drugs, and this effect can be uniformly relied on. If these claims are susceptible of substantiation, as I believe they are, then certainly antiseptic inhalations have a position in the therapy of tuberculosis as enviable as anything can be short of a specific. Inhalations, properly employed, tend to relieve cough, aid expectoration, and control septic fever, and, in view of these capabilities, and by reason of the improvement in the nutrition of the lungs from the coincident exercise, I believe we can say that their influence is actually curative, though, of course, indirectly so. Trudeau used, for a time, inhalations of the vapor of hydrofluoric acid, and claimed to have distinctly affected the bacilli.[43] Hot air inhalations, with a view to their bacillicidal action, had quite a vogue a few years since. The results were *nil*, for it was soon proven that by the time the inspired air had reached the pharynx it had cooled to the temperature of the surrounding tissues. Gaseous inhalations have been popular and of considerable benefit in certain conditions. Valenzuela[44] advocated inhalations of sub-oxygenated air, as lessening the hyperoxygenation of the blood and the increased tissue-waste in florid conditions, and claimed by admixture of certain proportions of carbon dioxid to exactly reproduce the effects of varying degrees of altitude. In appropriate doses carbon dioxid is not poisonous and it is said to have the power of producing cicatrization of cavities and ulcerations. Nitrogen monoxid is a constituent of the so-called "Compound Oxygen," and its anesthetic and sedative properties make it often of decided benefit. Bergeon's plan of gaseous enemata certainly was valuable, though disagreeable and complicated in its application. Inhalations of chlorin have been used, off and on, since the beginning of the century, and, in recent years, have been employed with benefit as part of the treatment of Shurly and Gibbes. Of more recent date is the procedure advocated by Carasso of Genoa,[45] consisting of continuous inhalations of oil of peppermint, with creosote internally, combined with super-alimentation. His conclusions seem to have been gratifying to himself, but the method has been without startling results in the hands of others. Hauke in 1870 constructed the first machine for the inhalation of compressed air. It has had many successors more or less elaborate. Among the most valuable is undoubtedly the pneumatic cabinet of Williams, which came into general use in 1885. At first it excited a great deal of interest and discussion, but gradually lapsed into oblivion (except in the work of some few men), quite as undeservedly as many other valuable discoveries. After nearly eight years of almost daily use I can quite agree with Quimby[46] that it is capable of immense benefit if it is used judiciously and with due appreciation of its capacities. Waldenburg's gasometer apparatus is also of decided value in certain cases.

Intratracheal injections have been employed with a fair amount of success in many instances. They seem to have a somewhat similar action to antiseptic inhalations, and have the advantage of not requiring so much cumbersome apparatus. I have used them with apparent benefit on many patients, and usually employ a solution of guaiacol and menthol in sweet almond oil. (See article by Barton.[46])

In the treatment of tuberculosis of the upper air passages the achievements of Herying and Krause, by curettage and excision of involved areas and the application of lactic acid, have enabled us to treat, with a large chance of success, the hitherto intractable and terrible lesions which occur in the pharynx and larynx. In our own country, Gleitsmann[47] has probably done more successful work in this direction than any of his colleagues. The method of direct injection of creosote into diseased tissues, proposed and practised by Chappell of New York,[48] has been, in many instances, brilliantly successful.

The hyodermatic, or more properly, intramuscular injections of medicaments seem in the main to have as their object the stimulation of leucocytosis and phagocytosis. Among them are to be mentioned Liebreich's injections of cantharidinate of potassium,[49] the Shurly-Gibbes injections of iodin and bichlorid of gold,[50] Landerer's injections of cinnamic acid,[51] and Edison's recent Aseptolin, beside a host of others. Vaughan's elaborate researches on the nucleins and their therapy are in the same line.[52] Iodoform, ichthyol, creosote, guaiacol, and most of the modern antiseptics have been used in the same way, and with varying degrees of success. The antithesis of hot air inhalations—persistent and continuous lowering of the body temperature—has been

advocated for its theoretical bacillicidal action by Reed, who gives antifebrin as often as the temperature reaches 101° F.[55]

The drug most widely used to-day in the internal treatment of tuberculosis is creosote or some of its derivatives. It was first systematically investigated and brought to the attention of the profession by Sommerbrodt.[54] It is of undoubted value, though its exact status and the preferable preparation is not settled, but it is very questionable that it exerts any direct influence on tuberculosis.

Perhaps the first attempt to directly affect the bacillus by the influence of bacteriological products was made by Cantani of Naples who endeavored to attain this result by inhalations of cultures of the bacterium termo.[56]

Before Koch's announcement of the results of tuberculin therapy several observers had remarked a modification of the tuberculous process from thorough and repeated vaccination. The enthusiasm caused by the first exploitation of tuberculin, the subsequent distrust and disappointment, and its final repudiation by the profession at large, are of too recent occurrence to make it necessary to recall them. That the wholesale rejection of Koch's theories was as unjust and illogical as their first pyrotechnical acceptation is evidenced by the results of the work of a few conscientious, careful men in our own country, who have not allowed themselves to be swayed by popular clamor, but have determined to find out the truth for themselves. The efforts of Klebs to prepare a serum free from the objections of the first crude preparations have given us tuberculocidin and antiphthisin, each an improvement on its predecessor. They have been used by many clinicians with most promising effects. Among our compatriots Denison,[56] Trudeau,[57] and Von Ruck [58 59 60 61] lead in their results. In his Sanitarium at Asheville, N. C., Von Ruck has used these products extensively and with effects which, if they are not yet *brilliant*, are most promising for the future. That in the line of the work that he is doing, with facilities equaled probably by none in this country, will be found (if it is not *already* found) a specific for tuberculosis, is a hope that is not entirely utopian.

Specific medication naturally applies only to a particular, definite, uncomplicated, pathological condition, and therefore it is well to remember in our search that we must not neglect, in striving for our comprehensive, all-embracing, ideal remedy, the broad principles of general treatment, as well as the minute details which will help our patients (very possibly cure them), until the remedy shall be given to us.

The modern treatment of tuberculosis presents itself to my mind with a double side: (1) That we must by all our resources, pre-natal, prophylactic, hygienic and sanitary, limit, and perhaps finally eradicate, the disease. (2) When it does occur, that we must use every endeavor by means of inhalations, injections, internal medication, climate, diet, *anything*, *everything*, which we can command, to eliminate the complicating infections and leave the tuberculous process to be dealt with by the specific which *will* come, if it is not already here. *Then* tuberculosis will lose its terrors, and the names of Koch and his co-workers and successors will be transmitted to posterity, as the greatest benefactors humanity has ever had. By means of sanitation and of serum-therapy (undoubtedly *the* therapy of the future), mankind will, at last, reach a point where (barring fortuitous accidents) the alloted span of life will be achieved, and the end of each human being will be Euthanasia.

BIBLIOGRAPHY.

[1] Pepper's Text-book of Medicine, vol. ii, p. 23.
[2] Pepper's Text-book of Medicine, vol. i, p. 7.
[3] Sollis, *Journ. Med. de Bordeaux*, 1892.
[4] Spano, "*Récherches Bacteriol. sur la Sperme*," etc., *Revue de la Tuberculose*, No. iv., 1893.
[5] Foa, *Gazetta degli Ospedali*, 1892.
[6] Jäckh, *Virchow's Archiv.*, No. 142, Hefte 1.
[7] Armanni, *Internat. Aerztl. Kong.* (Abteil-Hygeine.)
[8] Lehmann, *Berlin. klin. Woch.*, July 9, 1895.
[9] Schmorl and Kockel, *Beiträge zur Path. Anat.*, xvi, Part 2.
[10] Bar and Rénon, *Comptes rend. de la Soc. de Biologie*, July 5, 1895.
[11] Northrup, "Tuberculosis in Children," *N. Y. Med. Journ.*, February 21, 1890.
[12] H. Neumann, *Deutsch. med. Woch.*, November 9–17, 1893.
[13] Suchanneck, "*Uber Scrofulose*," etc. Karl Marhold, Halle, 1896.
[14] Collins and Murray, MEDICAL NEWS, December 8, 1894.
[15] Lehmann, *Deutsch. med. Woch.*, No. 9, 1886.
[16] Frankenburg, *Münch. med. Woch.*, 1893, No. 17.
[17] Ernst, "Infectiousness of Milk," Boston, 1895.
[18] E. F. Brush, "Coincident Geographical Distribution of Tuberculosis," *N. Y. Med. Journ.*, March 8, 1890.
[19] O. Roth, *Correspondenzblatt f. Schweiz. Aertze.*
[20] Dieulafoy, *Bull. Acad. de Med.*, 1895.
[21] Lermoyez, *Bull. Soc. med. des Hôpitaux*, July, 1894.
[22] Schlenker, *Virchow's Archiv.*, cxxxiv, 1 and 2, 1893.
[23] Brindel, *Revue hebdom. de Laryngol., etc.*, Nos. 30 and 31, 1896.
[24] Chappell, *Journal of Laryngology, etc.*, September, 1896.
[25] Wright, Trans. Amer. Laryngol. Assn., 1896.
[26] Strauss, *Münch. med. Woch.*, No. 28, 1894.
[27] Hance, "Infectiousness of Dust," *N. Y. Med. Record*, vol. xlviii, p. 903.
[28] Arnold, "*Untersuchungen über Staubinhalationen*," etc., Leipsic, F. C. Vogel, 1885.
[29] G. A. Evans, "Mensuration in Physical Diagnosis," etc., *Brooklyn Med. Journal*, November and December, 1893.
[30] Holmes, "Diagnosis of Tuberculosis," etc., *N. Y. Med. Record*, No. 1348.
[31] Denison, "Microscopical Proof," etc., *N. Y. Med. Record*, No. 1348.
[32] Biggs and Huddleston, "Tubercle Sanitation," *Am. Journ. Med. Sciences*, January, 1895.
[33] Meeting Section Public Health, N. Y. Acad. Med., *N. Y. Med. Record*, No. 1307.
[34] *Münch. med. Woch.*

[35] E. F. Brush, "Consanguineous Breeding," etc., *N. Y. Med. Journ.*, June 28, 1890.
[36] Solly, article on "Climate," Hare's System of Therapeutics, vol. i.
[37] Denison, "Rocky Mountain Health Resorts."
[38] *Food and Sanitation*, January 18, 1896.
[39] J. A. Lindsay, London *Lancet*.
[40] W. G. Thompson, "Notes on Ozone Preparations," *N. Y. Med. Record*, No. 1217.
[41] Merck's Bulletin, 1892, No. 11.
[42] Trudeau, *N. Y. Med. Record*, May 15, 1888.
[43] Valenzuela, quoted from "Tuberculosis," Hare's System of Therapeutics, vol. i.
[44] Carasso, *Wiener Med. Presse*, 1894, xxxv, p. 1466.
[45] Barton, "Intratracheal Injections," *N. Y. Med. Record*, August 1, 1896.
[46] Quimby, "Pneumatic Cabinet," etc., *International Med. Mag.*, January, 1893.
[47] Gleitsmann, "Surgical Treatment of Laryngeal Tuberculosis," Trans. Amer. Laryng. Assn., 1895.
[48] Chappell, *N. Y. Medical Journal*, March 30, 1895.
[49] Liebreich, *Berlin. klin. Woch.*, February, 1891.
[50] Shurly-Gibbes, *Therap. Gaz.*, April, 1891.
[51] Landerer, *Deutsch med. Wock.*, vol. xix., p. 204.
[52] Vaughan, MEDICAL NEWS, December 15, 1894.
[53] Reed, *Australian Med. Journal*, February 20, 1895.
[54] Sommerbrodt, *Berlin. klin. Woch.*, 1891, No. 4, p. 1048.
[55] *London Medical Record*, November 16, 1885.
[56] Denison, "Antiphthisin," *N. Y. Med. Record*, July 20, 1895.
[57] Trudeau, "Antiphthisin," *N. Y. Med. Record*, December 21, 1895.
[58] von Ruck, *Therapeutic Gazette*, October 16, 1893.
[59] von Ruck, "Etiological Treatment of Pulmonary Tuberculosis," *Therap. Gaz.*, March 15, 1895.
[60] von Ruck, "Present Status of Pulmonary Tuberculosis," April, 1895.
[61] von Ruck, "Report of 182 Cases Treated with Tuberculocidin and Antiphthisin," *Therap. Gazette*, May 15, 1896.
[62] Cornet, *Zeitschrift f. Hygiene*, 1888.

EXPLORATORY INCISION IN THE TREATMENT OF CLOSED FRACTURES AND DISLOCATIONS.[1]

BY JOHN B. ROBERTS, M.D.,
OF PHILADELPHIA, PA.;
PROFESSOR OF SURGERY IN THE PHILADELPHIA POLYCLINIC, AND THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA.

COMPLETE reduction, exact restitution of contour, and perfect retention, are the conditions of full success in the treatment of fractures. Deformity, impairment of articular movement, non-union, and neuralgic pain are remote results of failure to obtain these desirable conditions. Since aseptic surgery has made possible the prevention of infective inflammations in most open fractures, it is quite probable that better reduction, coaptation, and retention result in open than in closed fractures of the same grade and character of bony lesion.

The recent application of skiagraphy to surgical diagnosis has proved that fractures seemingly well reduced and properly dressed with splints may be the seat of considerable deviation from the normal skeletal relations. At the Polyclinic Hospital recently, for example, a fracture of the middle of the radius, supposed to be well reduced and dressed, was shown, by the use of the Röntgen ray, while the splints were in position, to have its fragments overlapping to the extent of about half an inch. In another case a painful swelling at the seat of a former injury to the fibula was discovered to be due to unrecognized non-union at that point. The rigidity of the tibia prevented the lack of union of the smaller bone being detected, but skiagraphy showed it plainly.

Nearly twelve years ago I advocated conversion of closed fractures of the cranium into open fractures by incision of the scalp, whenever uncertainty as to the character of the cranial lesion was prejudicial to intelligent treatment.[1] As part of my argument I said that no surgeon would hesitate to convert a closed recent fracture of the thigh or leg into an open one if it were impossible to replace fragments which were threatening life. I admitted that closed wounds are less serious than open ones, but asserted that with modern surgical methods, open wounds are preferable to closed wounds having inherent dangers that cannot be recognized without opening them. Further consideration and experience convinced me that this method should be extended to fractures in the limbs, even when life was not threatened, if obscurity of lesion or difficulty in reduction jeopardized function. Accordingly, a few years later,[2] I gave it as my opinion that recent fractures of the lower end of the humerus might with propriety be subjected to exploratory aseptic incision, if satisfactory coaptation was not obtainable under anesthesia; and that such action, though it involved opening the elbow joint, was as legitimate in properly selected cases as the recognized exploratory incision made in obscure abdominal conditions.

My belief in the propriety and value of exposure of the fragments in a certain limited number of closed fractures has been strengthened as years have passed. The method, which I do not claim as novel, has, however, not been sufficiently impressed upon the profession to cause its adoption by surgeons in general. Allis of Philadelphia has advocated it[3] in rebellious fractures of the upper third of the shaft of the femur, in order to apply steel screws for retentive purposes. In England, Lane has employed it[4] in oblique fractures of the tibia and fibula near the ankle, for the same reason. McBurney[5] and others have resorted to it in fracture of the upper end of the humerus complicated with dislocation. Dennis[6] and Ricard[7] also approve of it in cases where there is difficulty in obtaining correct apposition of fractures. Other writers may have mentioned the subject, and cases may have been occasionally reported; but, except in fractures of the cranium and patella, I think

[1] Prepared for the Second Pan-American Medical Congress, November, 1896.

that most surgeons are more apt to be satisfied with imperfect results than to advise immediate exposure of the fragments before the patient comes out of the anesthesia induced for the purpose of examining and reducing the fracture.

This attitude of the profession in general has been evident in societies at which I have incidentally mentioned my views;[1] and is due to conservatism bred by the fear of open fractures felt by all in the pre-antiseptic period of surgery. The method has suggested itself to many practical surgeons, but it needs to be ever before our minds as a legitimate procedure.

My advocacy of cutting down upon closed fractures is limited to cases in which ignorance of the exact lesion, impossibility of reduction, imperfect immobilization, or failure to deal efficiently with complicating lesions makes the incision the less of two evils. An aseptic incision is almost devoid of risk, even if it opens a joint; but that slight risk should not be added to the patient's burdens unless the probability of deformity, of interference with joint movements or other functions, of pain, of paralysis, or of non-union justify it. Here, as in all departments of surgery, it is the surgeon's duty to exercise care and good judgment in selecting the method of treatment. To illustrate my meaning I cite fracture of the patella, which I have never treated by incision and suture of the bone, because I have thus far always been able to satisfactorily bring the fragments together by hooks, subcutaneous suture, or splint. In one or two instances I have almost decided to lay open the overlying tissues in order to obtain approximation by direct appliances, but I have finally not been obliged to do so. The open operation I believe to be legitimate, and probably needful in a very few selected cases, but I am opposed to it as a routine treatment.

It is self-evident that the wound exposing a fracture must be aseptic, and that the operator who adopts incision must be familiar with the steps to be pursued at the inception of infective inflammation. A man who will hesitate to reopen the wound or drain the joint, at the moment septic premonitions show themselves, should associate a more energetic surgeon with himself in such operative treatment of fractures. The risk of incising muscles and opening joints, if done in an aseptic manner by an operator familiar with truly aseptic and antiseptic surgery, is unquestionably very slight. Primary union without disturbance of joint-function will be almost universal.

If it once be admitted that the seat of a fracture can be exposed by incision, with little or no risk to life, there are many advantages that will at once suggest themselves:

1. The exact lines of separation can be seen, and the significance of lines of comminution in relation to subsequent reconstruction can be fully appreciated.

2. Coaptation need no longer be guessed at by the sensations imparted to the examiner's fingers, separated as they are from the bone by varying thicknesses of muscle, fat, and skin; nor need it be dependent upon the possibility of having conveniences for taking a skiagraph.

3. The fragments can be accurately fitted together, torn periosteum replaced, and muscular and fascial bands, nerves and muscles disentangled from undesirable positions between the pieces of broken bone. This prevents deformity by permitting restoration of normal contour of the limb, and lessens the occurrence of non-union, neuralgia, atrophy, and ankylosis.

4. When the osseous, muscular, and vascular relations have been restored, they can be perfectly maintained by the application of sutures, pegs, nails, screws or ferrules to the bone, and sutures or ligatures to the muscles, nerves, and vessels.

5. The pain, due to extravasation of blood, rapid inflammatory exudation or traumatic synovitis, is relieved by the removal of the clots and leaking out of exudation and synovial fluid. The interstitial pressure caused by extravasated blood and exudate has often heretofore caused surgeons to split the skin and deep fascia by long incisions, in very bad fractures, in order to avert threatened gangrene. A similar relief of tension in less urgent cases will undoubtedly lessen pain and suffering, though such operative treatment would ordinarily not be adopted. The incisions employed to uncover the fractures are therefore indirectly of value as relievers of pain.

6. Pain is also lessened, in the few cases requiring direct retentive apparatus, because the sutures, nails, or screws prevent motion between the fragments better than external splints. Muscular spasm or incautious movement has therefore little opportunity to cause suffering.

7. Fat embolism is probably less likely to occur in fractures liable to its occurrence, if early escape for the fatty *débris* is permitted by incision.

8. Ankylosis from faulty position of fragments, irregular formation of callus due to stripped up periosteum, and gluing down of tendons, will seldom occur after the fracture has been disclosed to the scrutiny of a competent surgeon.

9. Repair of the broken bone and functional restitution of the surrounding tissues occur more rapidly than when coaptation is imperfect, or when damaged, muscular and other structures are left to the unaided efforts of nature. Impairment of digital movements after fractures is probably often due to coincident rupture or laceration of muscles, which

might have been repaired by suturing with catgut, if the surgeon had known of the existence of the complication. The aseptic wound affords him this opportunity; and afterward usually heals so rapidly that it is of no disadvantage to the patient's period of convalescence. This early restoration of wage-earning capacity is of great value to many patients.

10. It not infrequently happens that a closed fracture seems to have been well set, and to have left little deviation from the normal; and yet the patient has lost some of his availability as a machine. This is most likely to occur in the lower limb which, during locomotion, carries the entire weight of the man. A slight change in the axis of a bone or in the plane of an articulating surface may perhaps throw the weight upon the hip, knee, or ankle in an abnormal way and induce a considerable and ever increasing disability. This contingency is usually avoidable after the accurate inspection of the injured bone permitted by uncovering the fracture by incisions.

In vicious union of fractures due to absence of treatment, or to injudicious treatment, I believe that it is sometimes much better to expose the seat of deformity and divide the deformed bone with an osteotome than to refracture subcutaneously by an osteoclast or the surgeon's hands. Many cases can indubitably be well treated by refracture without incision or by subcutaneous osteotomy; but if there be a reasonable doubt as to one of these methods enabling the surgeon to accomplish relief of the deformity, free exposure, such as I have just been advocating in recent fractures, is the proper treatment.

A similar method of dealing with luxations which are not readily reduced by manipulation under anesthesia is, in my opinion, preferable to a long continuance of unsuccessful manipulations, the application of great power by apparatus, or a relinquishing of the attempt to restore the integrity of the joint. It is true that in all dislocations, except those of the spinal column and the backward luxation of the second phalanx of the thumb, reduction is usually readily accomplished by skilful manipulation under anesthesia, provided the attempt is made while the injury is recent. My contention is that in recent dislocations, when this is not the case, and in old dislocations, arthrotomy should be promptly done. No surgeon would recommend allowing the displacement to remain without attempting reduction; and I believe that compound pulleys or other methods of applying great force are usually more risky than prompt and thorough exposure by incision. Immediately before making the incision it would be well in most cases to make a final effort to reduce by manipulation; but this should not be carried to a sufficient extent to cause much bruising or muscular laceration. The presence of such traumatism would increase the liability to septic processes, if imperfect asepsis allowed germs to gain access to the wound during the operation.

Arthrotomy for irreducible dislocation is not a novel suggestion, for it has been repeatedly done by many surgeons in old injuries. It has not, however, I think, been often adopted until after vigorous efforts have been made to subcutaneously replace the separated articular surfaces. Its use in luxations a few hours or a few days old, except perhaps in the fingers and toes, is probably almost unknown as an accepted surgical procedure. I believe it ought to be the approved treatment in a small number of cases. The advantages of the open method will at once be patent when the accidents that occasionally follow the employment of the older methods are recalled. Fracture of the bone or laceration of artery, vein, or nerve, is only likely to occur when the region is not exposed to the operator's eye, In case of impossibility to properly reduce the dislocation, moreover, the end of the luxated bone can be excised. This will probably nearly always give a better functional result than to allow the previous condition to persist. Excision is not infrequently required after attempts to reduce old luxations without incision have proved unavailing. In an attempt to reduce an old luxation of the humerus I have displaced the head of the bone in such a way that it rested on the brachial plexus and caused more trouble than the original deformity. This would not have been the result, I think, if I had exposed the luxated bone by arthrotomy. If the open treatment is to be adopted it is evident that the patient will receive the greatest advantage if it be instituted before the head of the bone is altered in shape, the socket changed, and muscles and fasciæ contracted or adherent to surrounding tissues. The open method in addition gives opportunity to divide any ligaments, tendons, fasciæ and muscles which restrain reduction, to scrape out any material filling the socket, and to make provision for preventing recurrence of dislocation by retrenching the capsule or other plastic measures.

Skiagraphy may have a field in this department of surgery, as in fractures, by indicating the character of the luxation before the incision is made. It may perhaps be urged to this plea for a more general employment of exploratory incision in closed fractures and dislocations that there are great objections to making a closed lesion of the osseous system an open one.

I know of no objection except the risks inherent in anesthesia, the possibility of infection, the occurrence of serious bleeding, and the production of

ankylosis. The objections are of no force when the injury is one requiring exploratory incision. Anesthesia will have been used in such instances for diagnosis or attempted reduction. Its moderate prolongation for the necessary time will add practically nothing to the risk. Bleeding is no contraindication except in that rare condition, hemorrhagic diathesis. Ankylosis is more liable to occur from displaced fragments or articular surfaces, irregular callus due to stripped up periosteum, and interference with articular contact, than from aseptic incision into the joint and readjustment of the joint structures. The possibility of infection is, then, the only factor that requires consideration. Fifteen or twenty years ago, even subcutaneous tenotomy at the heel, recommended by the surgeons of the Pennsylvania Hospital in cases of marked displacement after fractures of the tibia, was undertaken with some hesitation. Now operative infection in muscular and osseous lesions is so preventible and so readily managed by prompt action that it is no longer a valid objection to incision in a closed fracture or dislocation, if functional disability is liable to occur unless this operation is performed. For some years it has been the practice of surgeons to incise open fractures freely in order to thoroughly cleanse the deep recesses, obtain an antiseptic condition of the lesion, and get rid of effused blood. An extension of operative surgery is, in my opinion, now warranted in closed fractures and dislocations in which ordinary methods of reduction prove unavailing or unsatisfactory.

BIBLIOGRAPHY.

1 "Trans. Am. Surgical Asso.," vol. iii (1885), pp. 6 and 105.
2 "Trans. Am. Surgical Asso.," vol. x (1892), p. 58.
3 MEDICAL NEWS, November 21, 1891, p. 590.
4 "Trans. Clinical Society of London" (1894), p. 167.
5 "Annals of Surgery," May, 1896.
6 "System of Surgery," vol. i.
7 "*Traité de Chirurgie*," Duplay & Reclus, ii, 376.
8 "Annals of Surgery," April, 1895, p. 457, and "Philadelphia Polyclinic," August 21, 1896.

A FURTHER CONTRIBUTION TO THE STUDY OF THE FAMILY FORM OF SPASTIC PARAPLEGIA.

BY LEO NEWMARK, M.D.,
OF SAN FRANCISCO.

IN the *American Journal of the Medical Sciences* for April, 1893, the present writer described two families, in each of which there were children afflicted with a spastic condition of the lower extremities. In one of these families the spastic rigidity was observed in three brothers, in unequal degrees, and it was also remarked that some of the other children exhibited more or less excesssive tendon-reactions. The note referring to one of these reads thus: "Maggie, aged six years. According to parents has, habitually, 'a lazy, dragging walk.' Knee-jerks much increased; slight ankle-clonus could be elicited, but with difficulty, as the child could not be induced to relax the muscles. Tendon-reflexes of upper extremities are present, but not excessive. Jaw-jerk quite active."

The child was still in this condition in June, 1893; there was nothing in her manner of walking or her attitude to attract attention. When seen again in March, 1894, she was found to be affected with pronounced spastic paraplegia. The mother related that the patient had been well until August, 1893; she then contracted bronchitis, and at the same time her gait became impaired, the present condition of the legs developing very rapidly. No reliable statement could be elicited as to the exact mode and rapidity of the onset. The bronchitis was followed by whooping-cough. Before this illness the patient had been a cheerful child, but since then had been depressed and taciturn.

An examination in March, 1894, showed her to be pale and dejected. She coughed and had a temperature of 100° F. at noon. There were bronchitic râles and enlarged cervical glands. She was unable to walk without assistance, but when supported she could walk with the typical spastic gait, shuffling along on her toes. The tendency to the equinus position was a little more marked in the right foot than in the left. As far as her limbs are concerned her condition then was, on the whole, the same as at the last examination, on the 20th of December, 1895. On this day it was observed that she had regained her general health. While seated she exhibited no spasm of the adductors or rigidity at the knees The big toe of each foot tended to hyperextension. She was able to stand for a minute or so without aid, holding the trunk inclined forward, the hips and knees flexed, the thighs adducted and the heels drawn up. She walked stiffly and laboriously, if held by the hand, scraping the floor with the tips of her shoes. The nutrition of the legs was normal. The knee-jerks were greatly exaggerated. The tendo-Achillis-jerk was in excess: a single tap on the tendon sufficed to produce several alternations of extension and flexion of the foot. By tapping the right tendo-Achillis a few times in rapid succession before flexing the foot, prolonged ankle-clonus was produced, which lasted as long as the flexion was maintained. On the left side only very brief clonus was elicited. The plantar reflex was very faint.

In the upper limbs the tendon-jerks were exaggerated; no clonus was obtained. The jaw-jerk was present. Sensation, the functions of the bladder, and the pupils were normal. There was neither

strabismus nor nystagmus. In the right cornea there was a leucoma.

It will readily be conceded that the disease of this girl is the same as that with which her three brothers are affected. It is a spastic condition of the lower extremities, and it is the rigidity rather than any diminution of motor power that interferes with locomotion.

Erb[1] has published an account of two sisters, both of whom presented essentially the same clinical picture as these children, under the title of "Hereditary Spastic Spinal Paralysis." Strümpell[2] employs the same term for a spastic disorder observed by him in two different family groups, which, however, varies from that seen in Erb's and my cases in certain particulars. Indeed, within the last few years the multiple occurrence of spastic disease in families has been observed in a not inconsiderable number of instances[3], the classification of which is often rendered difficult by the variations they exhibit in respect to the age of onset, the progressive tendency, the range of symptoms, and other features.

Thus, while in some the spastic rigidity of the extremities is the sole manifestation of the disease, and might be referred to a morbid process in the lateral columns of the cord; in others, superadded muscular atrophy, inco-ordination or vesical debility would indicate a more extensive involvement of centers or strands in the spinal marrow, and in still others the associated symptoms would point to the brain as being primarily the defective organ. The anatomical data are by far too scanty to furnish a basis for classification.

The multiple occurrence of a disease in families is generally considered to be evidence of its endogenic nature. The resemblance of some of the cases of spastic rigidity occurring in families to "Little's disease" is, however, so great as to prompt inquiry into the conditions of the patient's birth and to sometimes suggest the dependence of their affection on the reiterated action of the etiological factors detected by Little in the abnormalities of labor rather than on a congenital tendency. In my former article I mentioned in this connection the cases of Schultze: Two brothers and their sister were each born at term, or after a somewhat longer period of gestation than usual; the births are said to have been slow and difficult, lasting three days in each case, but no artificial manipulations were resorted to —in fact, no medical aid was summoned. After delivery, it is stated, there was nothing to indicate that the infants had sustained any injury, and their development seemed normal until the age at which they should have walked, when the spastic rigidity of their lower limbs became obvious. An elder sister, the first-born child, was born without difficulty and remained well.

These cases are considered instances of "Little's disease," of cerebral birth-palsy, by Shultze and most authors who have occasion to comment on them. But it seems more plausible to me to classify them with the increasing number of very similar cases for which only a congenital tendency, peculiar to their family, will account. Wherein the "difficulty" of the births consisted, is not related; it is alleged that labor was prolonged, but we are allowed to infer that there was no asphyxia, there were no convulsions, no evidence that the duration of parturition had been disastrous to the children's brains. The easy birth of the first child would serve to indicate that there existed no structural abnormality in the mother sufficient to so impede labor as to cause a grave injury to the nervous system of three of the subsequent offspring.

B. Sachs[1] concurs with Schultze in regard to the etiology of the latter's cases, and therefore refuses them consideration in the chapter on "Hereditary Spastic Paralysis." He concedes to instrumental delivery some influence in the production of the disease, also, in the three brothers of my patient described in the foregoing, and while admitting "that there is a tendency to spastic paralysis in this family," yet he thinks "the fact that instruments were used at the birth of several children, including the one whose symptoms were most pronounced, makes it probable that 'heredity' alone was not responsible for the multiplicity of cases."

The assumption that the use of instruments may have been partially responsible for these cases is founded on nothing more than their external resemblance to a certain form of "Little's disease," and it is an unnecessary assumption, the tendency to spastic paraplegia being granted. At two of the births, moreover, no instruments were employed; and even if they had been the mere employment of them would not imply that disaster must follow on each occasion; nor would years have elapsed before the damage became evident.

The spastic condition of the children in the two families described by me conforms to what has been

[1] *Deutsche Zeitschrift für Nervenheilkunde*, Bd. VI.
[2] *Deutsche Zeitschrift für Nervenheilkunde*, Bd. IV.
[3] Higier recently collated the literature of the subject and added new observations in the *Deutsche Zeitschrift für Nervenheilkunde*, Bd. IX., H. 1. Since the publication of his article, Raymond and Souques (*Semaine Médicale*, August 8, 1896) have reported the cases of two sisters with progressive spastic paraplegia. The disease began in the elder, at the age of nine years, in one of the lower extremities, and then progressed until it involved both legs in a high degree, and also, in a less degree, the upper limbs and the trunk; in the younger girl, who had been affected since the age of twelve years, the lower limbs only were involved. The birth of each had been normal.

[1] "Nervous Diseases of Children," page 393.

called "the spinal type of hereditary spastic paralysis." By the kindness of Dr. H. M. Sherman, orthopedic surgeon to the Children's Hospital, San Francisco, I am enabled to report the history of two sisters, in a third family, who, besides an incipient spastic affection of the lower limbs, exhibit defective development of the power of speech. I have had only one opportunity of observing these cases, and plead this as an excuse for the incompleteness of the account of them.

No nervous disorders are known to have occurred in previous generations of this family. The father is said to be temperate in the use of alcohol, but to smoke cigarettes to excess. He is employed, like the father of the other children with which this paper deals, in the gas-works. He is reported to be normal, except that he has a "cast in the eye." The mother enjoys good health. She has had no miscarriages. The parents are not related by blood.

There have been five children. The eldest, Edith A., twelve years old, is well. She began to walk at the usual age. At her birth the forceps was used, merely to curtail labor, it seems. The second and third child died at four and two years respectively, both in the same week, of diphtheria. They had talked and walked well.

The fourth child, Emma A., is six years old. She was born at term; labor was easy, but was terminated by forceps by the same attendant as at the first birth. The infant was not asphyxiated, and had no convulsions. She thrived, and made her first attempt to speak at one year, but her articulation has remained very indistinct. The grandfather declares that he understands her with great difficulty. When two years old, the patient had scarlet fever, and the mother thinks that after that the faculty of speech was still more impaired. Two months before the visit, a stiffness of the legs and a tendency to raise the heels were first noticed.

Condition August 24, 1896.—In the room the patient stands, walks, and runs about actively, but close inspection reveals a decided inclination to pes equinus on the left side; the shortening of the tendo-Achillis is undoubted. There is slight rigidity at the knees. No ankle-clonus. Achillis-reflex present; also plantar-reflex. The knee-jerks are greatly exaggerated. Tapping on the anterior tibial region causes the whole leg to jerk. The big toes are now and then over-extended. Active jerks are easily elicited in the upper limbs — more active than normal. A plain jaw-jerk may be provoked.

The fifth child is Margaret A., four years and three months old. Born at term; no instruments employed. There was another attendant at this confinement. No asphyxia, no convulsions. Has had no illness except the present trouble. Began to say "mamma" and "papa" at one year, but her articulation remained very indistinct, and it is only of late that her mother has been able to understand her. Walked at fourteen months. Six months ago the tendency to walk on her toes became manifest, and it has been more pronounced since last May. Frequently catches her toes and trips, sustaining bruises. Wears her shoes out at the tips.

Condition August 24, 1896.—Very slight strabismus. The spastic condition of the lower extremities, although more pronounced than in her sister, is not sufficient to prevent active locomotion. Raises the heels when walking. There is incipient shortening of the tendo-Achillis. No foot-clonus. Great exaggeration of knee-jerks, which are easily provoked by tapping anterior tibial or femoral region. The plantar reflex is present. There is a tendency to over-extension of the big toes. Active jerks produced in upper limbs. A slight jaw-jerk is obtainable.

Both children use their upper extremities freely. At the examination they were noisy and unruly, but it was ascertained that they presented no disturbance of sensation. Their general nutrition and that of their legs, particularly, is good. It was difficult to form an accurate opinion as to the extent of the defect in their speech; an occasional expression indicated that they have some power of speech and that they are not idiotic. Indeed, they are considered intelligent by their mother and maternal grandfather. They have control of bladder and rectum, and are cleanly in their habits.

The association of defective speech with the spastic rigidity of the limbs ranks these cases with those of a cerebral or cerebro-spinal type. For the present, one must be content to merely record the cases and await the results of anatomical investigations before attempting further interpretation of the symptoms.

SYMPHYSEOTOMY FOR THE RELATIVE INDICATION.

BY EDWARD P. DAVIS, A.M., M.D.,
OF PHILADELPHIA;
PROFESSOR OF OBSTETRICS AND DISEASES OF INFANCY IN THE PHILADELPHIA POLYCLINIC; CLINICAL PROFESSOR OF OBSTETRICS IN THE JEFFERSON MEDICAL COLLEGE, AND MEDICAL DIRECTOR OF THE JEFFERSON MATERNITY; VISITING OBSTETRICIAN TO THE PHILADELPHIA HOSPITAL,
ETC.

WHILE there may be room for discussion regarding the positive indications for symphyseotomy in some cases, this operation is clearly required in cases where disproportion between the fetus and the pelvis exists, the pelvis itself being but little, if any, smaller than the average. The results of the operation in these cases are best, especially in multiparæ, in whom the genital canal has been previously dilated by childbirth, but in whom the progressive increase in the size of the fetus, seen in repeated pregnancies, is also a complicating factor. The prognosis in such a case depends very largely upon the presence or absence of infection, and whether or not the patient has been already subjected to fruitless efforts at delivery before

the operation is undertaken. These statements find illustration in the following case:

The patient, Mrs. M. K., was brought by ambulance to the Jefferson Maternity on January 21, 1896, with the following history: She had been delivered, some years previously, of a living child, by forceps, after a tedious extraction. Her general appearance was that of good health, and she was fully of average size and development. The present pregnancy was her second, and she had come into labor at full term, the child being evidently large and well developed. Spontaneous labor failing, the physician in attendance had summoned assistance, and forceps had been applied unsuccessfully. The presentation and position had seemed favorable for forceps delivery, but her physician had desisted, and had sent the patient to the Maternity. On admission, her general condition was fairly good. Palpation revealed the fact that the head had but partially engaged. The child was living, and occupying the second position. The mechanism of labor had paused at the stage of partial engagement. The heart-sounds were very rapid. Pelvimetry revealed the size of the pelvis as follows:

Anterior superior spines . .	24 cms.
Crests	25 "
Trochanters	30½ "
External conjugate . . .	19¾ "

The child was evidently larger than the average, the complication being disproportion between the mother and child, with but a slight contraction of the pelvis.

The husband and mother of the patient followed her to the Maternity, and it was stated to them that in the interests of the mother and child, symphyseotomy was clearly indicated. A guarded prognosis was given because of the previous attempt to deliver with forceps, and the danger of infection which it entailed. The patient had been in her own dwelling, and without the services of trained nurses. The operation itself was performed without difficulty; the symphysis was readily opened by an incision through the abdominal wall, terminating a half-inch above the joint, the joint itself being opened by a probe-pointed bistoury passed along the fingers which protected the urethra. After symphyseotomy, it was found that the occiput had rotated posteriorly, and the child was readily delivered in this position with Tarnier's forceps. It was noticed that a very perceptible odor was present when the child emerged.

The child was a male, weighing 8 pounds; 50½ cms. long. The measurements of its head were as follows: Maximum, 15½ cms.; occipito-mental, 14 cms.; occipito-frontal, 13 cms.; suboccipito-bregmatic, 12 cms.; biparietal, 10½ cms.; bitemporal, 9½ cms.; bisacromial, 13½ cms. The placenta weighed 1⅛ pounds; the length of the cord was 23 inches. The child's respirations were exceedingly rapid, varying from 40 to 60, and it was evident that inspiration-pneumonia had begun. The child survived delivery eighteen hours, perishing from pneumonia.

On examining the mother it was found that slight lacerations of the anterior and posterior vaginal wall had occurred, requiring suture; these were closed with chromicized catgut, the uterus freely douched with an antiseptic solution and tamponed with iodoform gauze. The symphysis was drained for twenty-four hours by a packing of iodoform gauze, while the bladder was continuously drained by permanent catheter for several days. The patient rallied well from the operation, but gradually developed a sapremic condition. This necessitated a thorough cleansing of the uterus with the douche-curette, after which her symptoms decidedly improved. Union occurred through the greater portion of the symphyseotomy-wound by first intention. Immediately above the pubes suppuration in the cellular tissue occurred, and a slight discharge of thin pus persisted for several days. This was readily drained by a light packing of gauze. Union occurred, without interruption, in the joint, the patient ultimately making a perfect recovery. She was kept at the Maternity seven weeks after admission, in order that her convalescence might be completely assured. She was then in excellent condition, able to walk on a level, and up and down stairs without discomfort. Her pelvis had united firmly, and the genital tract was in normal condition. Ten weeks after the operation her pelvis was measured, with the following results:

Anterior superior spines . .	24½ cms.
Crests	25½ "
Trochanters	31 "
External conjugate . . .	19¾ "

Comparison with the measurements made on admission shows a gain of ½ cm. in several diameters of the pelvis. This patient has been twice seen since her discharge, the last time during the month of October, 1896. She is in perfect health, and has not experienced the slightest inconvenience from the pelvis or pelvic organs.

The method of treatment employed for immobilizing the pelvis is that which I have found sufficient in seven symphyseotomies. So soon as delivery is effected, and the genital canal made aseptic, and sutured, if necessary, the pelvis is brought together by firm pressure, and a strip of the best rubber adhesive plaster, from six to eight inches wide, is passed firmly around the pelvis, the center of the strip being over the trochanters. The usual occlusive dressing is placed over the vulva and over the symphyseotomy-wound. The patient's knees are bandaged together until she fully regains consciousness after the anesthetic. When it is necessary to clean the patient, she is carefully lifted by two assistants who grasp the pelvis firmly from each side. When the strip becomes soiled, it is removed, the skin carefully washed with soap and water, then with alcohol, and dusted with powdered oxid of zinc, or boracic acid. A fresh strip is then applied. Should it be desired to avoid disturbing the patient, a second strip can be applied over the first, should the first become stretched or

moistened. A firm roll is placed beneath the patient's knees, her posture being most comfortable when the knees are partly flexed. The plaster dressing is worn for three or four weeks, when it is replaced by a canvas belt with buckles. Care is taken to cut out the plaster strip over the uterus, that it may not interfere with involution. In seven cases, good nursing and strict cleanliness have prevented the formation of bedsores. If the skin be bathed frequently, and alcohol be used in addition, patients should experience no trouble from the pressure of the bed or the constrained posture. This was the only case in which I have met with suppuration after symphyseotomy. The question occurred, so soon as pus was discovered in the joint, whether drainage would not be necessary by puncturing the anterior vaginal wall. It was observed that no active inflammation seemed present, and that the source of the discharge seemed to be the fatty and connective tissue immediately behind the joint. The gauze drain proved perfectly efficient, and the use of irrigation was not found necessary. So far as the ultimate result was concerned, the discharge from the joint seems to have had no bearing upon a perfect union.

In reviewing the case, the difficulties under which the physicians originally in charge labored must be kept in mind. In the ordinary dwelling, the circumstances are not favorable to a strictly aseptic operation, and especially in the absence of suitable nurses. While the physician himself may be thoroughly clean, it is almost impossible, without good nursing, to prevent infection in many cases. The interesting question arises, Was symphyseotomy justified, or should craniotomy have been performed? Here again, the experience of the writer is decidedly in favor of symphyseotomy, as this is the only case in seven in which the child did not survive. The careful examination of the child's head showed that injury to the cranium was not present. Inspiration-pneumonia was so clearly present that no reasonable doubt exists as to the cause of death. Had craniotomy been performed, the delivery would have been no less difficult, and the mother's genital tract would have been subjected to even more bruising than was present in the case. It was observed that as a result of the attempt to deliver with forceps the pelvic floor and vagina were considerably swollen when the patient was admitted. The heart-beat of the child on admission was sufficiently good to warrant an effort to save its life, and hence craniotomy was declined in favor of a conservative operation.

A Hospital for Children. — Baroness Hirsch is contemplating the desirability of giving 2,000,000 francs for the erection of a hospital on the Riviera for consumptive children.

CLINICAL MEMORANDA.

A CASE OF PERFORATING GASTRIC ULCER; OPERATION; RECOVERY.

By ANDREW J. McCOSH, M.D.,
OF NEW YORK.

In recent years considerable attention has been devoted to the surgical treatment of gastric ulcers, not alone in cases of perforation, but also when persistent pain and hemorrhage have baffled medical treatment. In the latter class of cases the possibility of failure to find the ulcer must always be considered before gastrotomy is recommended. In the former class, however, no question can arise as to the propriety of surgical interference. Gastric ulcer is a common disease, and perforation takes place in at least ten per cent. of the cases (Comte says in fourteen per cent.). Without surgical treatment more than ninety-five per cent. of these patients must die. In an admirable article[1] Drs. R. F. Weir and E. M. Foote have tabulated seventy-eight cases treated by operation (where perforation into the general peritoneal cavity had occurred), with a mortality of seventy-one per cent. This mortality, however, would undoubtedly be much reduced could the patients fall into the hands of the surgeon soon after the perforation. Take for example the twenty-three cases where operation was done within twelve hours (Weir and Foote's tables), and there were fourteen recoveries, a mortality of thirty-nine per cent.

The results of operative interfence in cases where a localized intraperitoneal abscess has formed without rupture into the general cavity must be still more favorable. In such patients an early diagnosis and an early operation are of the utmost importance. It is true that often the diagnosis is obscure, but even in doubtful cases the symptoms are generally such as to warrant an exploratory operation. The walls of such abscesses vary greatly in strength, and no one can predict how soon rupture will take place. In the case the report of which follows, the abscess had evidently existed for at least four weeks, and in spite of cathartics, gastric lavage, and vomiting, its walls had not yielded. At the operation this was explained by the large amount of inflammatory exudate surrounding the abscess cavity.

E. R., aged thirty-five; widow; never pregnant; absence of rheumatic, syphilitic, malarial, and alcoholic history. Has never suffered from typhoid, dysentery, or any of the contagious diseases. When twenty-one years of age she weighed 170 pounds. For years habitual constipation necessitated the use of cathartics every second or third day. During the past three or four years occasional attacks of severe constipation, when sometimes for weeks there would be no movement of the bowels. For the past eighteen months she has suffered from disturbances of digestion, occasional nausea and vomiting, with frequent severe colicky pains, and some abdominal distention. Considerable and progressive loss of flesh and strength. In September weighed 114 pounds. On October 24, 1895, attack of vomiting and nausea, continuing

[1] MEDICAL NEWS, May 2, 1896.

for two or three days, with abdominal pain, especially in the epigastric region. In spite of cathartics, persistence of obstinate constipation, so that until November 6th only one small movement of the bowels could be obtained. Abdominal distress increased and but little nourishment could be taken. On November 4th the epigastric pain had become so severe that Dr. R. Milbank was called in consultation by her physician. At that time the abdomen was considerably distended, the muscles rigid, and there was general tenderness, but more marked in the epigastric region. Dr. Milbank made the diagnosis of either perforating gastric ulcer, or partial intestinal obstruction due to a band, and advised laparotomy. He asked me to see the case on November 5th, and we agreed that the probable diagnosis was an ulcer of the stomach, which had either partially perforated, with a resultive local peritonitis, or had entirely perforated, with a resulting encapsulated abscess. Her temperature then was 101° F.; pulse, 100; respiration, 26. She complained of severe pain in the epigastric region, with exquisite tenderness, the most tender point being a little below and an inch to the left of the ensiform cartilage, and in this region an indistinct mass could be felt, though on account of the tenderness it was impossible to determine its nature or extent. Consent was not given to an operation. Between November 6th and 24th the patient was seen by a number of physicians, who were in doubt as to the nature of the trouble, and advised against immediate operative interference. During this time the epigastric pain continued, the abdomen remained moderately hard and tympanitic, nausea and vomiting persisted, but little nourishment could be taken, and there was a steady loss of flesh and strength. The bowels were moved by high oil enemata and gastric lavage was employed. There was continued fever; the morning temperature was 99½ to 100° F., the evening 101 to 102° F., occasionally rising as high as 104° F.; pulse, 110 to 130. She was afterward admitted to the medical division of the hospital, when the necessity of operation was urged by Dr. F. C. Kinnicut. On November 25th the patient was admitted to the surgical division. Abdomen hard and moderately tympanitic. Epigastric region very sensitive to pressure. Projecting from under the free border of the left costal cartilages, toward the ensiform cartilage, could be felt a resistance, and an indistinct mass which seemed immovable and apparently attached to the stomach. Temperature, 102½° F.; pulse, 110. In spite of adverse opinions the case was diagnosed as one of perforating ulcer of the stomach with an encapsulated intraperitoneal abscess. The history, the acute epigastric pain and tenderness, with the indistinct mass in this region, seemed to point to this conclusion. Another important sign was, that the pulsation of the aorta seemed to be transmitted directly to the finger, when gently placed on the surface of the abdomen just below the tip of the sternum. The impression was given that a solid body had taken the place of the hollow viscera, that it rested on the aorta, and was adherent to the abdominal wall. This peculiar pulsation is often a sign of great value when it is a question in diagnosis between cancer and tumors of an inflammatory origin.

Operation. — November 26th; chloroform. Vertical median incision, 3½ inches downward from the tip of ensiform cartilage. When the peritoneum was reached, it was found firmly adherent to structures beneath. In the upper three-fourths of the incision was found the adherent left lobe of the liver, which was markedly congested. In the lower fourth was found the stomach adherent to the abdominal wall and to the liver above. This agglutination of stomach and liver formed the superior wall of the abscess. The liver was separated and pushed upward and the stomach pushed downward. Between these organs there was a considerable mass of inflammatory exudate. Through this material the finger was gently pushed, and at the depth of two inches a cavity was entered which contained about two ounces of frothy, purulent fluid, particles of coagulated milk, and remains of food. At the bottom of this cavity, at a point 3½ inches below the skin, was felt an opening into the wall of the stomach, which admitted the tip of the index finger. The opening was oval in shape, with indurated and comparatively smooth edges. For a considerable distance around this opening the wall of the stomach was thickened, and very markedly so, for a space the size of a silver dollar; its thickness at the edges of the opening being at least one-third of an inch. This opening was situated in the lesser curvature, just anterior to the attachment of the anterior layer of the lesser omentum, and at a point about one-fourth of the distance from the cardiac to the pyloric orifices.

The abscess cavity was carefully cleansed, the edges of the opening in the stomach were thoroughly scraped with a scalpel and trimmed with the scissors. The opening was then closed by two rows of sutures. The first row consisted of uninterrupted catgut sutures passed through the serous and muscular coats, both of which were much infiltrated with inflammatory tissue. The second row consisted of interrupted silk sutures inserted through the serous coat. The tissue was so friable that several of the sutures of each row tore out, and consequently it was necessary to introduce the needle at a considerable distance from the edge of the opening. After careful cleansing, a strip of sterilized gauze was passed down to the line of suture and the end brought out through the abdominal wound, the remainder of which was closed by three rows of sutures. Moderate shock followed.

November 27th: Patient complained of nausea, and there was slight vomiting. Temperature, 100½° F.; pulse, 110.

December 1st: External dressing changed; no sign of leakage. Temperature, 99½° F.; pulse, 110.

December 3d: Gauze strip removed; no leakage. Temperature has not reached 100° F.

December 7th: Attack of pleurisy, with effusion on *right side*, continuing with considerable severity for ten days.

December 20th: Sutures removed; gradual gain of strength; nausea disappearing and appetite returning; bowels move freely.

December 25th: Out of bed; fair appetite; progress very slow.

January 10th: Considerable gain of strength; discharged.

October, 1896: Since discharge, there has been slow but progressive gain in flesh and strength. For the first six months, appetite was very poor and digestion weak. For past three months, however, gain has been more rapid. Increase in weight since discharge from hospital, twenty pounds. General condition fair; no nausea or vomiting, but caution needed in the selection of her diet. No pain, and patient feels that she is slowly, but steadily, improving.

January 1, 1897: Gain of ten pounds in weight since last report. Health excellent.

SUBPERIOSTEAL SQUAMOMASTOID ABSCESS.

BY O. A. LACRONE, M.D.,
OF KALAMAZOO, MICH.

SUBPERIOSTEAL squamomastoid abscess generally occurs as the result of infection of the mastoid antrum and cells, the pus passing between the plate of the squamous portion of the temporal bone which covers the antrum, and the mastoid. The periosteum being more easily separated over the squamous portion than over the mastoid, the swelling occurs above the ear. It is generally an acute process and presents a formidable aspect, as the three cases recently coming under my observation will illustrate.

CASE I.—P., aged fifty-four, consulted me for a swelling above the ear of such size that it pushed the upper part of the ear down and out, until it formed an angle of about forty degress with the head. He stated that two weeks before he had had slight pain in the ear, which had soon subsided, but the noises in the ear had caused him considerable uneasiness, and for one or two days he had been suffering intense pain above the ear and in the eye of the affected side.

I could not discover pus or inflammatory action in the middle ear, and the drum was not even congested. I directed hot applications, leeches, and an anodyne for the night, and in the morning found him resting comfortably. He had no pain, the temperature was normal, and there was but slight tenderness on pressure. I ordered the hot applications continued, but in a few hours was summoned and found the patient suffering intensely and considerably alarmed. I made a free incision down to the bone at the lower and posterior angle of the swelling, at the junction of the squamous and mastoid portions, but could detect no pus. The depletion caused by the free hemorrhage gave him relief, and he rested well until two days later, when the swelling rapidly extended over the mastoid. A second incision was made, a small quantity of pus escaped, and the bone was found to be eroded over part of the squamous and mastoid portion. The wound was cleansed and packed with gauze, and he made an uninterrupted recovery in a few days. The hearing, which had been only slightly impaired, soon returned to normal, and there has been no inconvenience experienced since. There was no history of injury in this case.

CASE II.—Through the kindness of Dr. Rush McNair, I saw J., aged nine, a robust boy, who had suppurative otitis media following scarlet fever. The ear had been discharging freely for some three weeks, when suddenly the temperature rose to 103° F.; pain became very severe in the side of the head and face, and an immense swelling appeared above the ear, extending forward over the zygoma. An incision had been made over the ear through the periosteum, but no pus was found. Chills, vomiting, and an increase of the swelling over the mastoid rapidly supervened. The sanitary conditions of the place were such that we decided to remove the child to the hospital, where, on the following day, we made a free incision over the mastoid and another over the anterior part of the squamous. We found the entire temporal bone, except the tip of the mastoid process, denuded of periosteum. There was free communication through the antrum to the tympanum. A large quantity of dark-colored pus escaped. The wound was thoroughly irrigated with bichlorid solution, and a strip of gauze was passed through both openings. The discharge from the ear soon ceased, the temperature dropped to normal, the appetite returned, and the pain completely subsided.

CASE III.—A well-developed and healthy child, aged nine months, had suffered from pain in the left ear for a short time, which soon subsided, and as there was no discharge from the ear, no further notice was taken of it until two weeks afterward, when a swelling suddenly appeared above and behind the ear. The temperature was 101° F., and pulse 110; the appetite was good, but the child was unable to sleep well, and would not lie on the affected side. I made an incision over the mastoid down to the bone, and a considerable quantity of dark, thick pus escaped. The mastoid and part of the squamous portion of the bone were denuded of periosteum, and the bone eroded and greenish. The abscess was thoroughly washed out and a drainage-tube inserted. After two days the child was removed to its home in Otsego. Three days later the tube had dropped out; there had been no pus since the second day. I washed the wound again thoroughly, and as no pus escaped, I did not again insert the tube. The child made a good recovery, and has since had no trouble.

It will be noticed that in two of the three cases the drum had not been ruptured, and the pain had been so slight that no suspicion of middle-ear trouble was entertained. It is not so strange that this should occur in a child where the plates of bone are connected by a fibrous matrix, and the pus finds easy egress, but it is peculiar to find it in the case of a man fifty-four years of age, even though extensive and destructive inflammation of the middle ear may occur without rupture of the tympanic membrane.

These abscesses are not common, nor are they as dangerous as those affecting the antrum and cells. The acuteness of the attack and the severity of the symptoms demand immediate attention. Mastoid abscess, on the one hand, may be easily overlooked unless the inflammation be severe enough to destroy the mucous lining of the cells and attack the bone beneath. Both varieties present easy roads for the entrance of pathogenic organisms to the brain—the squamomastoid variety through numerous veins which connect directly with the lateral sinus through

the mastoid foramen, and the mastoid variety through thrombosis of the veins in the mucous membrane, when the inflammation is severe enough to produce that result, and by erosion and necrosis through the tegmen, antrum, and sigmoid groove.

MEDICAL PROGRESS.

Differential Diagnosis of Abscess of the Brain.—In the *Fortschrit d. Medecin*, November 15, 1896, OPPENHEIM emphasizes the difficulty of differential diagnosis in traumatic brain abscesses, which may be confounded with traumatic meningitis, apoplexy, encephalitis, tumor, epilepsy, traumatic neuroses, etc. Cases cited prove how easily a one-sided traumatic apoplexy, or a hemorrhagic non-purulent encephalitis may, from symptoms alone, be taken for abscess. Oppenheim mentions a striking case in a boy, in which a wound on the forehead was followed by slow pulse, optic neuritis, rigidity of the neck, etc. A diagnosis of frontal abscess was made, but puncture gave no pus. On the following day the pulse was 144, there was fever and unconsciousness, and rapid death. The autopsy showed a well-developed tubercular meningitis. The boy was ill before the accident. The traumatism merely gave an impulse to the development of the disease.

Suppurative meningitis occurring with an abscess is likely to be overlooked. An abscess of the brain is marked by normal or subnormal temperatures; fever is by no means a necessary symptom. If an attack begins with a rise of temperature, it is probably not due to an abscess of the brain—certainly not to an uncomplicated one. A slow pulse is, perhaps, the most reliable single symptom.

It is also well to remember that patients suffering from ear troubles often become hysterical, and that a hasty diagnosis of hysteria, even if the typical symptoms are present, may falsely be made in cerebral abscess of otitic origin.

Pregnancy and Labor After Operative Antefixation of the Uterus.—The frequency with which backward displacements of the uterus occur, and the increasing use of surgical measures to relieve them, give an especial interest to the report of pregnancies occurring after the various operations for antefixation, GRUSDEW has reported in the *Münchner med. woch.*, November 17, 1896, the results in 123 operations of this character. In fifty of the cases a ventral, or vesical, or ventro-vesical fixation was performed; in forty-one, Alexander's operation, and in thirty-two, vaginal fixation. These figures represent only those cases which were kept sight of for some time after operation.

In no case of abdominal fixation did relapse occur. Four of these patients became pregnant, one of them after sixteen years of sterile matrimony. There was no unusual symptom during the pregnancy, except in one instance. In one case, at operation, the uterus was found to be adherent to the inflamed right tube, which was removed. The uterus was then fastened right and left with silkworm-gut to the recti muscles, and with catgut to the vesical peritoneum. Beginning with the second month of pregnancy, there was occasional pain in the right side and straining at micturition. At the end of the fifth month examination by catheter showed the bladder to be situated in the pelvis, underneath the uterus, and extending well to both sides. The urine was perfectly clear. Two of these four cases had normal labors. In the other two, pregnancy was not completed at the time of report.

Alexander's operation was performed upon forty-one women, of whom the subsequent history could be ascertained. It is worth noting that the ligaments were shortened a good deal, in most cases from three to five inches. There was a recurrence of the posterior displacement in three cases, in one of them only after labor. Pregnancy occurred in twenty-three of the patients operated upon, resulting in five miscarriages and eighteen deliveries at term. One of these was with forceps. Several of the patients complained during pregnancy of more or less pain in the operative scars.

Four of the patients treated by vaginal fixation became pregnant. Three of those upon whom Mackenrodt's operation was performed finished the pregnancy normally. In the fourth case the operation recommended by Dührssen, with opening of the peritoneum, had been done. In the second month displacement recurred, and was followed by abortion.

In the light of his experience, Grusdew is inclined to reserve the abdominal fixation for those cases in which there are firm adhesions, or in which disease of the adnexa is suspected, preferring for all uncomplicated cases Alexander's operation. The vaginal operations are less advisable, in his opinion, because the strong attachment of the uterus to the vaginal wall is apt to disturb pregnancy, and if that goes on to term, relapse is not uncommon. Of course, these objections are most potent in young married women.

Antiseptic Properties of Saliva.—HUGENSCHMIDT (*Ann. de l'Inst. Pasteur*, October, 1896) has made an attempt to determine why operations upon the mouth are so seldom followed by infection. He was not able to prove that the saliva possesses any germicidal power. The commoner bacteria grow rapidly in it. Nevertheless, it has a two-fold mechanical action to keep down infection. It dilutes and washes away alimentary material, and by its alkalinity it prevents fermentation.

But Hugenschmidt thinks the saliva possesses the power of stimulating diapedesis in the numerous lymphatic organs situated in the mouth. Even in its normal state the saliva contains products of the secretion of microbes, and therefore possesses an attraction for microbes, and thus favors the phagocytic action.

This hypothesis the writer upholds by several experiments. One of them was the introduction of small glass tubes into the abdomen of the guinea-pig. These tubes were closed at one end and filled with saliva. In eight hours it was found that the leucocytes had crowded into the open end of the tube, forming a plug about two mm. in thickness.

In a second experiment, a small portion of the mucous membrane of the lower jaw of the guinea-pig was resected and its base mangled with a curette. In twenty-four hours the wound was covered with a layer of leucocytes, in the interior of which were found bacteria of various sorts, apparently of the same sorts as those in the saliva. From these, and other experiments. Hugenschmidt concludes that the saliva has no germicidal power, and that the freedom from infection of wounds in the mouth is due to active phagocytosis, brought about by the power of the saliva to stimulate the diapedesis of leucocytes.

Relation of the Sexual Organs to the Skeleton.—HENRY MEIGE in the *Journal des Connaissances Médicales*, 1896, speaks of their regularities in the development of the skeleton often observed among those whose genital organs are atrophied, either from accident or from some congenital cause. One naturally asks the question whether atrophy of the sexual organs does not influence to some degree the development of the bony tissue. It is known that under the influence of some irritating cause the bones undergo malformations, either an enlargement or an atrophy. No one has been able to give a satisfactory explanation of these two contrary conditions. In studying more carefully this question, anomalies of the skeleton are found to occur more often in the case of individuals suffering from atrophy of the genital organs.

In the case of infantilism and effeminacy a congenital atrophy of the sexual organs is nearly always accompanied by some characteristic change in the skeleton. In a general manner, it may be said that in such cases the skeleton holds a place half way between that of man and woman. But on the other hand, under these same conditions one sees sometimes giants, then again dwarfs. The latter, however, seem to predominate, although it cannot be said that an atrophy of the sexual organs is the true cause of this lack of development of the bones, for in these cases there is nearly always an imperfect development of some part of several different organs. In nearly all the cases of an over-development of the bony tissue there is observed a marked atrophy of the sexual organs; this is also noticed in the case of those who have accidentally been castrated; eunuchs, also, often have very large frames. In other cases, anomalies are noticed only in certain bones, or parts of bones. So individuals of an infantile or effeminate type often suffer from *genu valgum*, or from different exostoses, and are especially subject to inflammations of the bony tissue. It is well known that at the age of puberty there is a rapid growth of the skeleton; sometimes this is uniform, sometimes only partial. Over-development of the bony tissue is also noticed in animals that have been castrated, and it is generally the hind legs and buttocks that are increased in size. For example, capons have very long feet; the hoofs and the hindquarters of the ox are more developed than those of the bull. From such facts as these Meige concludes that there must exist some relation between the development of the sexual organs and that of the skeleton.

Treatment of Club Foot.—BILHAUT (*Journal de Médecine de Paris*), in an article on paralytic club foot, calls attention to the fact that deformity of the foot almost always follows paralysis of a lower extremity in a child. This is the case whether the paralysis is due to a myelitis anterior or is spastic in character. For this reason the foot should immediately be secured and supported in a proper position for locomotion.

In neglected cases where the deformity has existed for some time, contractions of the muscles, tendons, and ligaments will have taken place, and the position can be corrected only by operation. In some cases there are marked bony changes also, and operation upon the soft parts is not sufficient, cuneiform osteotomy or removal of the astragalus being necessary to bring the foot into a proper position.

A Simple Method of Abdominal Massage.—STEINHARDT (*Allg. Med. Centr. Ztg.*, No. 70, 1896). A hollow sphere 4 inches in diameter is made of two pieces of hard wood fitted together with a screw. The cavity is partially (not more than $\frac{5}{8}$) filled with buckshot. Immediately before rising in the morning the patient, still fasting, rolls this ball over the abdomen for about fifteen minutes, at first in various directions, and then along the course of the large intestine, from cecum to sigmoid flexure. The falling of the shot within the ball gives a slight vibratory motion which may be increased by lifting the ball until it almost leaves the skin and then dropping it. The treatment is said to cure chronic constipation.

The Outcome of Placenta Previa Cases in Koblenz.—In the *Centralbl. f. Gyn.*, No. 36, 1896, FÜTH tabulates the statistics he obtained from midwives in Koblenz with reference to cases of placenta previa occurring in their practice. The material involved 50 mothers and 53 children. A physician was present in 44 of these cases. Of the 50 mothers, 19 (38 per cent.) died, 2 before delivery, 2 during delivery and 15 after delivery. Of these last, 4 died from loss of blood, 6 from septic infection, 4 from the effects of previous hemorrhage, and one from an unknown cause.

Of the 53 children, 32 were born dead and 10 others died in the first 9 days. Only 11 (20.8 per cent.) outlived a month.

In 12 cases (2 of them fatal) the first hemorrhage appeared just before labor pains. In 38 cases between the first hemorrhage and labor there was an interval of days, weeks, or even of months, during which time the physician, or sometimes the midwife, tamponed the vagina.

Füth believes that many of the mothers might have been saved if the physicians had followed the two cardinal principles which ought to govern these cases:

1. As soon as a diagnosis of placenta previa is made labor ought to be induced.

2. Only that form of treatment is advisable which stops the hemorrhage and rapidly dilates the cervix, so that the doctor may be by the bedside until the child is delivered. This is especially necessary in the country, where it may take hours to get a physician.

These ends are best accomplished by an intra-uterine colpeurynter with continued traction upon its tube, followed—as soon as dilatation permits—by podalic version.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed *exclusively* to THE MEDICAL NEWS will after publication be liberally paid for (accounts being rendered quarterly), or 250 reprints will be furnished in place of other remuneration. When necessary to elucidate the text, illustrations will be engraved from drawings or photographs furnished by the author. Manuscripts should be typewritten.

Address the Editor: J. RIDDLE GOFFE, M.D.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	$4.00
SINGLE COPIES	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	7.50

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in *registered* letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK,
AND Nos. 706, 708 & 710 SANSOM ST., PHILADELPHIA.

SATURDAY, JANUARY 16, 1897.

IS THE COUNTRY DOCTOR A DISTINCT SPECIES?

A NEW poem, uniting praise and pity for the country doctor, has begun to go the rounds of the medical press. Like the old ones, it is quite pathetic and quite good poetry, but is there a true foundation for the sentiment on which these country-doctor poems, orations, and stories are based? And, if not, is there an adequate excuse for writing even good poetry and good prose which will tend to foster false ideas?

We are all familiar with the poetry-country-doctor. He has hayseed in his hair and mud on his boots, his hands are large and calloused, while his heart is big and tender; he rides incredible distances, usually at night, and a very stormy night at that; he is very badly paid—and usually in apples, potatoes, and hay. He is uncouth, and we are informed very distinctly that his advantages have been decidedly lacking, yet his conscientious devotion to his calling and his insight into human nature are such that he accomplishes therapeutic miracles. But, unfortunately, just enough complicated cases are recognized by the poet to bring in a soft-handed and hard-hearted city consultant, who steals the glory and appropriates the possible financial recompense of the unsophisticated country hero. All this sort of poetry creates a sentiment against the city physician and begets a maudlin sympathy for the country doctor—the kind of sympathy that leads to letter-writing, and that would like to express itself in the sending of a barrel of old clothes, but which does not conduce to professional respect nor to professional employment; for it is a characteristic of human nature not to give employment to any one who really needs it, unless that employment is such as sawing wood, or cleaning out a cellar, or sweeping a walk.

Now, speaking as one so bred in city life that existence in the country would be as uncomfortable as the life of a fish out of water, we wish to protest against the sentiment that the country doctor is an essentially different being from the city doctor, and most emphatically that he is any more of a hero and any less of a gentleman than the latter. A man of common sense dresses somewhat differently for a ten-mile drive against a sweeping wind than for a mile-ride through streets whose buildings prevent any prolonged exposure to the wind; he also conforms to the customs and financial habits of the community in which he lives. But, with these provisos, a considerable acquaintance—and an acquaintance on a personal, friendly basis—with country practitioners, has failed to justify the type as depicted in the class of literature referred to.

A study of the graduating class of the average medical school will, we believe, show that the men who are planning for a country practice are just about the same kind of men as those who are expecting to engage in city work. We must also grant that, strictly speaking, there are very few *country* doctors, for the doctor must locate in some business and social center, however small; so that he can scarcely be considered a resident of the country, while he enjoys the privileges of social intercourse with his fellow villagers. The man who seeks a new country, be he physician, lawyer, farmer, or business man, expects to put up with the inconveniences of pioneer life, and can scarcely ask for sympathy on that account. The physician who chooses to locate in a small town in any of the thickly-settled States, has usually ready access by rail to the larger cities, where the advantages of museums, theaters, and other places of amusement, libraries, and large stores may be had without great expense or inconvenience.

While the fees of the country practitioner seem low to his city colleague, his expenses are even proportionally lower. We have been informed that the expense of keeping a horse in the country, or in a small village, is about 10 cents a day—not much more than a tenth of the expense in a large city; the disproportion in rent is approximately as 1:5 or 1:10; household supplies are obtained at slight cost, and many drains on the purse of the city doctor are entirely lacking.

The village doctor, moreover, deals with a comparatively fixed population, most of his clients being responsible property-owners, while the city physician is plagued with a relatively large pauper class and with another class who live better than the average resident of the country or village, but who are absolutely irresponsible for debts. There is no doubt whatever, that the financial trials of the first few years of city practice are practically wanting in the experiences of the country practitioner, and the latter, though perhaps not in the position to look forward to the possibilities of a large income, is much better able to lay up property and to occupy a relatively high position in the society in which he lives. It ought to be rather a matter of individual taste than of economic judgment whether one is to live in a city or in a small village.

Comparisons are always liable to involve odium, and they are especially to be deprecated when they tend to make two classes of what ought to be one body. The man who succeeds in making the Nebraskan believe that he is different from the New Englander has sown the seed of civil war. The belief in a difference is the precursor of enmity. Say to a man that he is not the same as another, and he immediately begins to formulate points of difference. Whenever he finds himself more fortunate, he pities, and, as a natural consequence, despises his rival. Whenever he finds himself less fortunate, he envies, and, as an equally natural consequence, hates. If the poet of the country doctor were inspired by true conditions, it would still be wise for him to refrain from inciting a sentiment that must inevitably tend to schism and mutual distrust. If, as we believe, his verses voice a false conception, they are not only a menace to professional unity, but an insult to both contrasted parties, each of whom is caricatured.

ACROMEGALY AND GIANTISM.

SEVERAL most interesting "missing links" between acromegaly and giantism have been supplied of late. On the one hand, Virchow and others have reported cases of marked increase, not merely of bulk, but of muscular strength in acromegalic subjects, followed, however, by rapid decline; and on the other hand, in two almost identical cases giants who were champion "strong men" and wrestlers up to their twenty-second and twenty-fifth years, respectively, after alleged "strains" during feats of strength, broke down and rapidly developed into well-marked cases of acromegaly, with characteristic marasmic symptoms. In the writer's case so much height was lost by the kyphosis and muscular collapse that the poor fellow was no longer available for exhibition purposes, while the attention attracted by the enormous overgrowth of his hands and feet was a source of much mortification to him.

Unfortunately, no light is thrown upon the relations of the two diseases by the results of treatment; nor is much to be expected, for if the dystrophy be due to an excessive pituitary secretion, whether normal or abnormal, but little is to be expected from the addition to the body-fluids of any form of pituitary extract. The negative results from its administration in the few cases in which it has been tried are not in any way surprising.

There appear to be, so far, only two other rays of light upon the problem which can be glimpsed—and they very feeble and remote ones. One comes from the group at the other end of the stature-scale, the dwarfs. Upon attempting to study them, the first fact that presents itself is that the "true" or healthy dwarf is almost as rare as the "true" giant. The study is far from complete, but so far as it has gone, a very large proportion of the cases are obviously due to either tubercular caries and curvature of the spine, hereditary syphilis, cretinism, or rickets. A non-pathologic dwarf is rare, and nearly fifty per cent. of them are rachitic. Furthermore, the "undergrowth" is in precisely the same situations in dwarfs as the overgrowth in giants, *viz.*, the lower limbs, arms, and jaws, the trunk being singularly little affected in proportion, so that their defect is much less noticeable in the sitting posture. Their facial angle is usually large, owing to the small jaw, and their foreheads prominent. Finally, in the

two or three cases in which special measurements have been taken, the pituitary fossa is as markedly diminished in size, in proportion to the cranial circumference, as it is increased in the giants, although, in so small a number of cases, this may be a mere coincidence. Still, when the skeletons of an acromegalic giant and a rachitic dwarf are placed side by side, and carefully compared, the conviction rises almost involuntarily that they are actually the opposite extremes of one and the same process. The fact that we have already a definite pathologic condition, or rather name, to account for the latter is no bar to the suggestion, for the causation of rickets is almost as much of a mystery as that of acromegaly. Essentially, it appears to be an ataxic myxedema of the growth-zones of the bones, and has many features which strongly suggest that it also may be due to some disturbance of the internal secretions of the thyro-pituitary group. At all events, the administration of pituitary or thyroid extract in its earlier stages would be a perfectly legitimate experiment, and might lead to some interesting results.

The same narrowing of the pituitary fossa was found in each of three cretinous skulls examined, the fossa in one of them being reduced to a mere transverse slit, and Virchow, in his classic monograph, "Die Entwickelung des Schädelgrundes," gives drawings of two cretin skulls in which the same condition existed. He also speaks of this "sphenoidal kyphosis" as one of the characteristic signs of the cretin skull-base.

A careful survey of the field of comparative medicine has as yet revealed no similar dystrophy in the lower animals, unless it be the singular condition in horses known as osteoporosis, which has passed into popular idiom as the "big-head." As its names imply, the disease is characterized by, first, an extraordinary overgrowth of the jaws and facial bones, rapidly followed by porotic softening and breaking down of the hypertrophied tissues, usually ending in death from general marasmus within a year or eighteen months. It is a disease of young life (second to fourth year), occasionally attacks the bones of the feet and legs, and is in some cases associated with extraordinary precocity. Several members of a celebrated family of imported hackneys, that matured so early that as two-year-olds they swept everything before them in the show-ring, beating even four- and five-year-olds, died in their fourth or fifth year of osteoporosis, literally "falling to pieces under the strain of their own weight," as the attendant veterinarian graphically expressed it. In its localization, course, and results, therefore, the disease presents some show of family likeness to acromegaly. Unfortunately, the pituitary fossa in the horse is an extremely shallow groove, with hardly any definite boundaries, except in front, so that from a careful examination of a number of osteoporotic skulls it was impossible to decide whether the pituitary body had been enlarged or not. One other suggestion of possible bearing upon the problem has been made from a clinical standpoint, and that is whether the extraordinary disturbances of growth and general nutrition in children, associated with adenoids in the vault of the pharynx, "post-nasal growths," may not in some way depend upon the fact that this "pharyngeal tonsil" is, embryonically, simply the lower portion, or stalk, of the pituitary body, from which it has become separated by the ossification of the base of the skull. Not infrequently, in early life, a fibrous cord still runs up through the body of the sphenoid, connecting the two glands, and it is not unreasonable to suppose that structures which were originally continuous may yet retain reflex sympathy with and influence upon each other's condition. All who have studied the condition are agreed that the obstruction to respiration or other mechanical effects of these growths are utterly inadequate to account for the tremendous disturbances of nutrition, both bodily and mental, associated with them and relieved by their removal; and their "pituitary reflex" action has been suggested by no less an anatomical authority than Harrison Allen and endorsed by Osler and Dana.

One of the most convincing collateral proofs of the importance of the pituitary is to be found in its fascinating development and ancestral history, but into this the lack of space forbids us to enter. Suffice it to say that it is now regarded as the remains of, first, the primitive gullet, round which the entire brain was developed, and secondly, of a canal which connected the alimentary tube with the central canal of the nervous system. As the brilliant researches of Andriezen have shown, this canal is still open and functional in larval forms of Ascidians and Amphioxus, and a glandular mass is developing in its wall whose

secretion exercises an important influence upon the nutrition of the nervous system. So conclusive were the results obtained by him that he actually ventured to predict the symptoms which would follow the destruction of the pituitary in mammals. About a year afterward experiments made by other investigators upon kittens resulted in the production of no less than four out of the five symptoms predicted by him.

From all which considerations, we venture to tentatively conclude:

First: That the pituitary body is still functional.

Second: That disturbances of its metabolism are the principal factor in both acromegaly and giantism.

Third: That it is not improbable that a similar factor exists in "dwarfism," rickets, and cretinism.

Fourth: That a reflex disturbance of its function may possibly underlie the dystrophy accompanying pharyngeal adenoids.

Fifth: That it would appear to be a sort of "growth-center" or proportion-regulator of the entire appendicular skeleton.

WOODS HUTCHINSON, M.D.

ECHOES AND NEWS.

The Northern Tri-State Medical Association.—This Association, consisting of representatives from Ohio, Indiana, and Michigan, will hold its next annual meeting at Ft. Wayne, Indiana, January 19, 1897.

Surgeon to the American Yacht Club.—It is reported that Dr. Charles I. Pardee, Dean of the Medical Department of the New York University, will be elected fleet surgeon at the approaching annual meeting of this club.

Cholera Carried to England.—A transport from Calcutta arrived at Plymouth, Eng., last week, and reported that five deaths from cholera had occurred among the soldiers and sailors during the passage. The ship has been quarantined, and other cases are expected.

Professor Chittenden Ill.—The severe illness of Professor Chittenden, who occupies the chair of Physiological Chemistry at the Yale Scientific School, has caused his friends much alarm during the past week. Happily, the latest accounts suggest some improvement in his condition.

New Medical Chief at Randall's Island.—Dr. Edward Kershner, formerly a medical inspector of the United States navy, has been appointed chief of the medical staff on Randall's Island, New York, in place of Dr. E. J. Tucker, recently removed by the Commissioners of Charities.

University of Pennsylvania Statistics.—A table recently issued by the University of Pennsylvania, Philadelphia, shows that the total number of students now in attendance at the University is 2811, of which 968 are in the medical department, and 373 in the department of dentistry. Forty-four states and territories, and thirty-four foreign countries are represented.

Pharmacists in Connecticut.—The State Medical Association of Connecticut has determined to bring a bill before the legislature of that State repealing the feature of the present medical practice act which exempts pharmacists from its provisions. It is asserted that many quacks now evade the law by becoming pharmacists. It will also be suggested that the registration fee for physicians shall be raised from $10 to $25.

The Germ of Yellow Fever Discovered.—A cable dispatch from Rio de Janiero to the *London Times* this week states that a young Italian, Giuseppe Sanarelli, by name, has undoubtedly discovered the yellow fever germ. Sanarelli is the director of the Uruguayan National Institute of Experimental Hygiene, and a follower of Pasteur. He is said to have sent an account of his discovery under seal to the Academy of Medicine at Rome.

The New York Academy of Medicine.—At the annual election, held Thursday, January 7th, 1897, the following officers were chosen: President, Edward G. Janeway, M.D.; vice-president, Everett Herrick, M.D.; trustee, Joseph D. Bryant, M.D.; trustee, to serve three years, Clement Cleveland, M.D.; member of committee on library, Charles H. Knight, M.D.; member of committee on admissions, T. E. Satterthwaite, M.D.

Doctors Strike for Higher Fees.—A strike of doctors at Yarmouth, Eng., has just failed. The physicians in the town demanded higher fees from the benefit associations than had been paid, and a limitation of the classes of patients to be attended at club rates. The associations combined, and finding that they provided $10,000 worth of business a year, established a central office of their own, hiring a doctor from out of town to manage it.

Scarlet Fever Caused by Infected Milk.—A group of cases of scarlet fever at East Orange, N. J., affords corroborative evidence of the theory that epidemics of scarlet fever may be caused by infection derived from the milk supply. Nearly all the victims in this group are grown persons, and the sanitary officers claim to have obtained conclusive proof that the germs were brought to the afflicted families in milk supplied by a man whose helper in the dairy was convalescent from the disease.

Semi-Centennial of the New York Academy of Medicine.—The invitations to the Semi-Centennial Celebration of the Academy, beautifully engraved and entirely worthy of the Academy and the occasion, have been issued. The exercises will consist of addresses by President Cleveland and Dr. Joseph D. Bryant, and an oration by Dr. A. Jacobi, at Carnegie Music Hall, and a reception in the parlors of the Academy, with music and refreshments. A most enjoyable and edifying experience is anticipated by all who attend. The date of the celebration is January 29th.

The Bubonic Plague at Bombay.—The disastrous effects of this scourge, which have been noted from time to time in these columns, seem now to be greater than ever. Since the appearance of the disease Bombay has lost more than 300,000 inhabitants, who have fled to the country districts. The absence of all quarantine restraint makes it altogether probable that the infection has thus been spread over a wide area. In conjunction with the famine now afflicting the Indians their numbers will be seriously reduced by the "Black Death."

Protest of the N. Y. Medico-Surgical Society.—At a stated meeting of the N. Y. Medico-Surgical Society, held on January 4, 1897, the following resolution was unanimously adopted. "*Resolved*, That the President appoint a committee of three to draw up resolutions protesting against the clause in the draft of the charter for the Greater New York, which reads as follows: 'The Health Commissioner, who is not a physician, shall be President of the Board.'" The Committee was further instructed to present said resolutions to the proper authorities.

Aphasia of the Hand.—It may be readily appreciated that when a deaf-mute has lost the power of expression by the ordinary manual alphabet the condition is something more than simple agraphia. Such a case is reported by Professor Grasset of Montpellier, France. A man, who since his childhood, had practised the finger language and employed his right hand almost exclusively, after the occurrence of a cerebral thrombosis, was found to be entirely unable to communicate with this hand either by the sign language or in writing, although the paresis of the member was insufficient to account for his aphasia. With the left hand he still expressed himself without difficulty.

Sir Astley Cooper's Largest Fee.—The largest fee ever received by Sir Astley Cooper was tendered to him in a somewhat original manner. He had been attending in his capacity of surgeon a West Indian millionaire named Hyatt, with Drs. Lettsom and Nelson as physicians. The treatment was most successful, and in his joy Hyatt bestowed 300 guineas on each of the doctors. "But you," exclaimed the grateful patient, addressing Sir Astley, "you shall have something better." With this he flung his nightcap at the eminent operator. "Sir," replied the latter, "I'll pocket the affront." And he slipped the "affront" into his pocket. It contained a draft for 1,000 guineas.

The Interment of Pasteur.—On the 26th of December the impressive ceremonies attending the removal of the remains of Louis Pasteur, from Nôtre Dame to the splendid mausoluem which has been erected as their final resting place, occurred. Such a convocation of men of the highest rank in science has rarely been witnessed. Besides the throng of French delegates many foreign representatives were present. The final ceremony at the crypt consisted of the usual religious rites, and of the consignment of his father's body to the care of the future authorities of the Institute Pasteur by the only son, M. J. B. Pasteur, who is First Secretary of Legation at Madrid. M. Bertrand responded, accepting the trust, and eulogizing the illustrious founder of the Institute. These remarks were followed by short addresses from MM. Ramband, Paul Baudent, and Legouvé. The British delegates, Sir Joseph Lister, Sir Dyce Duckworth, Sir William Priestley, Sir John Evans, and Professor Crookshanks, spoke next. After them, remarks were heard from MM. Cornu, President of the Academy of Science; Bergeron, Perpetual Secretary of the Academy of Medicine; Perrot, Director of the Ecóle Normale; Teasier, President of the Student's Association, and lastly, M. Ducleaux, who paid a feeling tribute to his old and honored master.

Infection by Pets.—A case is narrated in *La Médecine Moderne* of a seamstress who was in the habit of allowing her dog to lick her face. Her right eye was attacked with inflammation which became so severe as to endanger the safety of the left one. Enucleation of the right eye became necessary, and in it was found a tape worm, which the dog had probably picked up while licking some less pleasing object. The danger of the transmission of parasites by dogs in this way, owing to the prevalent custom of allowing dogs to lick the hands and faces of their masters and mistresses, is a great one. The wonder is that accidents similar to the one narrated do not happen oftener than they do.

N. Y. State Medical Society. — The ninety-first annual meeting of this Society will be held at Albany, January 26, 27, and 28, 1897. Provisional Program: Tuesday Morning Session, 9.15 o'clock. President's inaugural address. Reports of officers and committees. Executive business. Papers—1. Two cases of Acute Intestinal Obstruction from Foreign Body, with Operation, Dr. C. Wilmot Townsend, New Brighton. 2. Excision of the Coccyx for Fracture and Necrosis, with a report of three cases, Dr. Edward N. Liell, New York. 3. The Fitting of Glasses, Dr. M. L. Foster, New York. 4. A Contribution to the Study of Cough due to Irritation of the Upper Respiratory Tract, Dr. Chas. N. Cox, Brooklyn. 5. A Consideration of Prolapsus Uteri, with Especial Reference to its Radical Treatment in the Aged, Dr. Andrew F. Currier, New York. 6. Some Diseases of the Alimentary Canal in the light of its Development and Ancestry, Dr. Woods Hutchinson, Buffalo. 7. Some Unusual Causes of Cough, Dr. Emil Mayer, New York. Election by districts of members of the Committee of Nomination at close of morning session.

Tuesday Afternoon Session, 2.15 o'clock. 1. Fancies and Fact in our Work, Dr. Joseph Eastman, Indianapolis, Ind. 2. The Correction of Depressed and Saddleback Deformities of the Nose by Operations performed subcutaneously, without the aid of Metallic or other Artificial Supports, Dr. John O. Roe, Rochester. 3. Gauze Drainage in Surgical Gynecology, Dr. W. E. Ford. Utica. 4. Observations on Abdominal and Pelvic Surgery. Preparation, Operation, and Results, Dr. W. Gill Wylie, New York. 5. The Merits of Abdominal Hysterectomy (with modified technic) for large Tumors, as contrasted with the Operation of Morcellation, Dr. Chas. A. L. Reed, Cincinnati, O. 6. Absorbable Ligatures and Sutures in Pelvic Surgery, Dr. Walter B. Chase, Brooklyn. 7. Obstetri-

cal Discussion: I. Introduction—Puerperal eclampsia, Dr. William Warren Potter, Buffalo. II. Indications for, and technic of, the Induction of Premature Labor, Dr. James P. Boyd, Albany. III. Infection of Puerpera, Dr. A. B. Miller, Syracuse. IV. Obstetric Delivery by Abdominal Section—indications and methods, Dr. Willis G. Macdonald, Albany. V. Relations of Posterior Displacements to Pregnancy, Dr. Matthew D. Mann, Buffalo. VI. Present Treatment of Fibroids associated with Pregnancy, Dr. A. Vander Veer, Albany. Discussion by Dr. W. M. Polk, New York; Dr. H. J. Boldt, New York; Dr. C. A. Von Ramdohr, New York, and Dr. Geo. M. Edebohls, New York.

Tuesday Evening Session, 7.15 o'clock. [This session will be held in the Bender Hygienic Laboratory.] Papers—1. Practical Application of X-ray in a Case of Fracture, Dr. William Hailes, Albany. 2. Photography of the Living Urinary Bladder, Exhibition of Photographs and Instruments and some Improvements in Urethroscopic Apparatus, Dr. W. K. Otis, New York. 3. X-ray Stereopticon Exhibition, Dr. Wm. J. Morton, New York. Inspection of the Laboratory by members and guests.

Wednesday Morning Session, 9.15 o'clock. Papers—1. A Contribution to the Study of Amebic Dysentery, Dr. Chas. E. Lockwood, New York. 2. Practical Points relating to the Diagnosis and Management of Syphilitic Brain Diseases, Dr. E. C. Spitzka, New York. 3. The Treatment of Locomotor Ataxia, Dr. Landon Carter Gray, New York. 4. A Case of Erythro-Melalgia, Dr. Henry L. Elsner, Syracuse. 5. Strophanthus; a Clinical Study, Dr. R. W. Wilcox, New York. 6. Should not the Credé Method be made Obligatory, Dr. Lucian Howe, Buffalo. 7. Discussion on the Relation of Impure Drinking Water to Disease, and the Cure and Prevention of the latter: I. Common causes of the Contamination of Drinking Water, Dr. T. M. Cheesman, New York. II. Diseases which can be directly traced to Contaminated Drinking Water, Dr. Geo. Blumer, Albany. III. Statistical Inquiry into the relation of Contaminated Drinking Water and Typhoid Fever, Dr. J. S. Billings, Jr., New York. IV. Dangers of the domestic use, other than drinking, of Contaminated Water, Dr. R. G. Freeman, New York. V. Methods of Purification of Impure Water, Dr. T. B. Carpenter, Buffalo. VI. Methods of Prevention of Pollution of Water, Dr. E. K. Dunham, New York. VII. Life History of the Typhoid Bacillus outside the body, Dr. F. C. Curtis, Albany. VIII. Bacteriological Diagnosis of Typhoid Fever, Dr. J. S. Ely, New York. IX. Typhoid Fever in Children, Dr. W. P. Northrup, New York. X. Medicinal and Dietetic Treatment of Typhoid Fever, Dr. W. S. Ely, Rochester. XI. External and Internal use of Water in Typhoid Fever, Dr. C. G. Stockton, Buffalo. XII. Importance and Practical Method of Disinfection of Excreta of Typhoid Patients, Dr. W. G. Thompson, New York.

Wednesday Afternoon Session, 2.15 o'clock. 1. Double Murphy-Button and Anastomosis, Dr. J. H. Glass, Utica. 2. Some Clinical Cases of Disease of the Testicle, Dr. L. B. Bangs, New York. 3. Hereditary Syphilis, Dr. A. Jacobi, New York. 4. Acute Inflammation of the Gall Bladder, Dr. Maurice H. Richardson, Boston, Mass. 5. Personal Experience in Hernia of the Bladder, Dr. C. L. Gibson, New York. 6. The Management of Club Foot, (*a*) when to commence, (*b*) how to apply simple and efficient mechanical treatment, (*c*) when to operate, (*d*) choice of operative procedure, (*e*) rules governing the same, Dr. A. M. Phelps, New York. 7. Rectal Discussion: I. Stricture of the Rectum, its Etiology and Treatment, Dr. Joseph M. Matthews, Louisville, Ky. II. The Surgical Treatment of Cancer of the Rectum, Dr. Daniel Lewis, New York. III. When is Colotomy Justifiable, Dr. Charles B. Kelsey, New York. IV. The Proper Method of Treating Internal Hemorrhoids, Dr. Robert T. Morris, New York. V. Preventive, Operative, and after Treatment of Fistula in Ano, Dr. Edward Clark, Buffalo. VI. Prolapse of the Rectum, Dr. George R. Fowler, Brooklyn.

Wednesday Evening Session in the Senate Chamber, 7.45 o'clock. Anniversary Address by the President. Annual dinner at the Kenmore Hotel, 9.30 o'clock.

Thursday Morning Session, 9.30 o'clock. Report of the Committee on Nominations. Papers.—1. The Importance of Choked Disk (optic neuritis) as a Symptom of Brain Tumor, Dr. Wm. C. Krauss, Buffalo. 2. Notes of Cases in Suggestive Therapeutics (hypnotism), Dr. H. S. Drayton, New York. 3. The Comparative Value of Optometric Methods, Dr. C. M. Culver, Albany. 4. Deficient Excretion from Kidneys, not originally diseased, and some Diseases Peculiar to Women, and Diseases of the Skin, Dr. L. Duncan Bulkley, New York. 5. The Necessity of new Methods of early Diagnosis in Tubercular Disease to Curative Treatment, Dr. J. B. Ransom, Dannemora. 6. A Rare Complication of Acute Rheumatism, Dr. Eugene Beach, Gloversville. 7. A Case of Hernia of a Sarcomatous Ovary, Dr. George Seymour, Utica.

CORRESPONDENCE.

INTRAVENOUS SALINE INJECTIONS.

To the Editor of THE MEDICAL NEWS.

DEAR DOCTOR: I was interested in reading the article in your issue of December 19, 1896, by Dr. L. A. Stimson, on intravenous saline injections in shock and in septic conditions. In sudden loss of blood, the increase of intra-arterial pressure by the injection is, of itself, important, and has been the means of saving life. In septic conditions, its use is new; but if, by osmosis, or by supplying certain needed elements to the blood, it enables the system to rally against the infection and to aid in overcoming it, it is worthy of extended trial. If food can be safely combined with the saline infusion, then it is worthy of a fair trial and the fullest investigation.

One experience has convinced me of its safety: Mrs. M., aged forty-five, married and mother of grown children, had been ill several months in the winter and spring of 1895 with some pelvic inflammatory trouble, which proved to be tubal gestation. She was confined to bed at intervals. In April she grew worse, and septic symp-

toms became manifest. About the middle of May, I was called in consultation with others. The patient was now in a serious septic condition, with small, but decided, tumor at the site of the left ovary and tube. During the previous twenty-four hours she had had two severe hemorrhages with pus, from bowel, which, without doubt, had come from rupture of abscess into rectum. For thirty-six hours, gradual but deepening coma was manifest. Though the condition was desperate, in consultation it was deemed best to operate at once. Under ether anesthesia, I opened the abscess through the abdomen, adhesions protecting the general peritoneal cavity. Blood clots and débris of tubal gestation were quickly turned out, and the cavity irrigated and drained with antiseptic gauze, the operation being done in a few minutes. The condition of the patient did not justify the hope that she would live an hour.

While using other means, I had the little transfusion apparatus of Jennings and a sterilized saline infusion in readiness. There was also a pint of peptonized milk at hand; so I determined to mix the two solutions, in equal parts, and inject through the median basilic vein. Peptonization of milk (which had been prepared by a capable nurse) would prevent its coagulation. The milk and ordinary saline infusion for transfusion were mixed and strained. I immediately opened the vein, and, with the assistance of the attending physician, injected a quart slowly, at a temperature of about 100°. The coma slightly improved, but only temporarily; but the pulse, which was 160, did improve quickly and decidedly in volume and beats, dropping to 130, with an improved tone. This condition was very well maintained, but after a few hours gradually declined. About five hours from the first injection, the same quantity of saline and milk was injected through the same vein, with same manifest improvement in the circulation. But the coma gradually deepened, the circulation, after several hours, again failing, with no improvement in other respects. The case was regarded as hopeless, and the injection was not repeated. The patient died twenty hours after the operation. The profound exhaustion from sepsis really caused death. Though the fatal result was aided by hemorrhage and shock, these, I believe, did not determine it. Though I had not heard before of milk being used in this manner, I believe its effect was good and the transfusion undoubtedly prolonged life. I should use it again, under similar circumstances, and believe it indicated in shock and loss of blood, and worthy of impartial trial in certain septic cases, even though much less profound than the one embodied in this report.

The use of warm saline infusions in the peritoneal cavity during some laparotomies, to prevent as well as to relieve shock, is known to surgeons. The application of the saline solution to the large peritoneal surface, by its absorption, and probably by the heat to the large nerve ganglia, is of greatest benefit; yet, in some of the more urgent cases, the good effect, I believe, would be more quickly manifested by its intravenous use, and, if support is needed, by the addition of carefully prepared peptonized milk.

In Case V, Stimson, patient suffering from general peritonitis due to perforative appendicitis, life, it is stated, was prolonged three days after operation by intravenous saline injections, when the patient died from intestinal paralysis.

It is of the latter I wish to speak, by reference to the following similar case: On January 27, 1894, I operated on Mrs. W. for gangrenous appendicitis, gas and pus having by perforation escaped into the peritoneal cavity, inducing general peritonitis. On the fourth day after, while progressing satisfactorily from the operation, a laxative having previously been given without effect, intestinal paralysis was painfully manifest. The patient was vomiting frequently and copiously, dark, liquid, fecal matter, which was very offensive. No medicine except the laxative had been given. Speedy dissolution was inevitable, unless the bowels could be moved. Enemas and cathartics are useless in these cases, so I aspirated the transverse colon, without ether, removing a large quantity of liquid fecal matter and gas. Vomiting at once ceased. The bowels moved naturally eighteen hours later, and the patient progressed to a safe recovery, which was due, undoubtedly, to the aspiration.

This condition of the intestines is due to sepsis, aided and aggravated, in many cases, by distention from gas and fecal matter. Medicines are generally useless. The bowels have been incised for relief. Aspiration should be tried in preference to other operative means, because simple and usually devoid of shock and danger, while ether and a more elaborate operation must add to the gravity of the situation. Respectfully,

W. W. GRANT, M.D.

DENVER, COL., January 9, 1897.

OUR PHILADELPHIA LETTER.

[From our Special Correspondent.]

STATUE TO DR. SAMUEL D. GROSS—ELECTION OF OFFICERS OF THE COLLEGE OF PHYSICIANS—MEETINGS OF THE OBSTETRICAL SOCIETY AND OF THE SECTION OF GENERAL SURGERY OF THE COLLEGE OF PHYSICIANS—LECTURE ON TYPHOID FEVER BY DR. J. C. WILSON, AT JEFFERSON MATERNITY HOSPITAL—AID FOR A PAY HOSPITAL FOR CONTAGIOUS DISEASES.

JANUARY 9, 1897.

IT is expected that the bronze statue of Dr. Samuel D. Gross, by A. Stirling Calder, recently cast in Paris, will arrive in this country during the present month, and will be erected near the Army Medical Museum in the grounds of the Smithsonian Institute at Washington. The movement for the erection of a statue to Dr. Gross was begun by the American Surgical Association, of which he was founder and first president. With the coöperation of the alumni of Jefferson Medical College, and other warm personal and professional friends, the necessary funds were collected. Congress appropriated a sum sufficient for the erection of a suitable pedestal, and the monument is to be unveiled by a granddaughter of Dr. Gross during the next Congress of Physicians and Surgeons in Washington. This statue is the second of its kind erected in this country to a physician. The other, in New York, being to

Dr. J. Marion Sims, a personal friend and contemporary of Dr. Gross.

At the annual meeting of the College of Physicians, held on January 6th, Dr. J. M. Da Costa announced the death of Dr. Theodore G. Wormley and Dr. William H. Pancoast, and paid a feeling tribute to the memory of these widely-known physicians. Dr. J. M. Anders read a memoir of Dr. H. Ernest Goodman, who died last February. The following officers were elected for the ensuing year: President, Dr. J. M. Da Costa; vice-president, Dr. John Ashhurst, Jr.; censors, Drs. Alfred Stillé, William F. Norris, R. A. Cleeman, and A. V. Meigs; secretary, Dr. Thomas R, Neilson; treasurer, Dr. Henry M. Fisher; honorary librarian, Dr. Frederick P. Henry; member of the council, Dr. G. E. de Schweinitz; committee of publication, Drs. G. G. Davis, D. T. Lainé, and Thompson S. Westcott: library committee, Drs. G. C. Harlan, F. X. Dercum, Charles A. Oliver, Wm. J. Taylor, and C. B. Penrose; committee on Mütter Museum, Drs. John H. Brinton, Harrison Allen, and George B. McClellan; hall committee, Drs. J. Ewing Mears, Morris J. Lewis, W. B. Hopkins, John K. Mitchell, and Casper Morris; committee on Directory for Nurses, Drs. Wharton Sinkler, J. C. Wilson, and J. V. Ingham.

Before the Obstetrical Society at its last meeting, Dr. Charles P. Noble presented "A Contribution to the Technic of Operation for the Cure of Laceration of the Pelvic Floor in Women," and Dr. Richard C. Norris read "A Clinical Report of a Year's Work at the Preston Retreat."

At the meeting of the Section of General Surgery of the College of Physicians, held January 8th, Dr. Charles H. Frazier read a paper on "An Operation for the Removal of a Myxofibroma of the Root of the Neck." Dr. Thomas S. K. Morton gave an interesting talk on "Fractured Ribs in the Aged." Dr. John B. Roberts thought that the interposition of a strand of muscle or periosteum between the ends of the fractured bone might be a possible cause of the frequency of ununited fracture of the humerus. Dr. Alfred C. Wood exhibited a patient from whom he had removed gouty deposits connected with the extensor tendons of the fingers and the anterior aspect of each knee, amounting to nearly a pint.

Dr. W. W. Keene was elected chairman of the Section for the ensuing year.

In the course of lectures which is being given at Jefferson Maternity Hospital, Dr. James C. Wilson had as his subject yesterday, "The Prevention and Care of Typhoid Fever, with Details of the Cold Bath Treatment." The statistics of the German Hospital, where Brand's treatment has been in use, up to January 1, 1896, showed that out of 524 cases treated there 38 had died, a percentage of mortality of but 7.25.

A concert, progressive euchre, and dance was given Wednesday evening at the Academy of Fine Arts, under the auspices of the joint committee of the Woman's Health Protective Association and the County Medical Society, in aid of the building fund for a pay hospital for contagious diseases. About 800 persons were present.

TRANSACTIONS OF FOREIGN SOCIETIES.

Paris.

THE ETIOLOGY OF APPENDICITIS—TREATMENT OF PRIMARY CANCER OF THE LIVER—EXPERIMENTS IN PULMONARY SURGERY ON DOGS—VALVULAR RUPTURE IN A CYCLIST—PLEURISY WITH EFFUSION DIAGNOSED BY MEANS OF THE ROENTGEN RAY.

GAUTIER reported before the Academy of Medicine, December 8, 1896, that two patients, a man and a child, who had used milk from tin cans were seized with colic, cramps, etc. It was assumed that they had been poisoned by lead in the milk, as the tinning in the can contained lead. But there is no possibility of milk taking up lead, except under certain conditions, as, for instance, on souring. There was no evidence that the milk was sour, and it was not analyzed. The symptoms were, in all probability, those of intoxication from bacterial fermentation in the milk, resulting from uncleanliness.

In the Surgical Society, session of December 2, 1896, BRUN combated the theory advanced by Dieulafoy that appendicitis results from the closing of the cavity of the appendix. He had seen cases in which the appendix had been transformed into an absolutely closed cavity without the slightest symptom of septic appendicitis. Further, a number of cases are on record in which, at an operation for the relief of peritonitis of appendicular origin, the appendix was found normal in size, without stenosis or phenomena of retention. Moreover, in appendicitis, the lesions are not always localized in the appendix. The affection frequently appears in children who have previously suffered from enteritis or enterocolitis, and this more general inflammation may even exist after the appendix has been resected.

WALTHER quoted several cases in which appendicitis supervened in the course of acute and chronic enterocolitis.

JALAGUIER held that, in the immense majority of cases, obstruction of the appendix was the result, not the cause, of appendicitis, and that this affection was merely an inflammatory one, usually supervening in the course of general infection of the digestive tract.

The discussion of this question was continued December 9th, when BROCA said that he had seen several cases with generalized peritonitis which began in an appendix thoroughly permeable.

TUFFIER endorsed the opinion already expressed that appendicitis was merely a localization of enteritis. The shape and structure of this organ were exceptionally favorable for perforation. He desired to call attention to a neglected side of this question, namely, intestinal obstruction consecutive to appendicitis.

SEGOND discussed the *diagnosis and surgical treatment of primary cancer of the liver*. Only twelve cases of resection of the liver for malignant tumors (nine carcinomata, three sarcomata) have been recorded. In all of these cases the operation was successful. A woman from whom he had removed a large fibrocystic tumor of the liver died in twenty-four hours from operative shock. The tumor, which was a trabecular epithelioma with poly-

morphous cells, sprang from the lower surface of the liver by pedicle. As in most of the recorded cases, the pedicle in this case was treated extraperitoneally.

TERRIER said that the tendency at present, especially in Russia, was to use ligatures placed on the base of the tumor, so as to avoid an external pedicle.

BROCA reported an esophagotomy on an infant six months of age, for the purpose of removing a metal brooch which the child had swallowed a fortnight before, and which could not be felt by a sound previous to operation. The surgical procedure was entirely successful. The diagnosis in such cases is very difficult.

QUÉNU made a brief statement of the results obtained in sixty *experiments in pulmonary surgery on dogs*. All animals in which the pleura was freely opened presented symptoms of dyspnea, and twelve out of fifteen died asphyxiated. It was thus shown that free opening of the pleural cavity is a serious matter when the pleura is healthy. If the visceral pleura was kept in contact with the chest wall, either by suture or by the use of intrapulmonary pressure, its cavity could be opened without danger. The latter condition was accomplished by causing the dogs to breathe compressed air. The results by this method were so favorable that Quénu unhesitatingly recommended it in operations upon the human thorax. Other investigators have shown that this intrabronchial pressure, if it does not go beyond the limits of the elasticity of the lungs, *i. e.*, beyond what is necessary for preventing pneumothorax, is absolutely harmless; and that it does not interfere with the circulation in the lungs, and has little influence on the general circulation.

In the Medical Society of the Hospitals, at the meeting of December 4, 1896, LAUNOIS presented a case of *aortic regurgitation due to valvular rupture in a cyclist*. The patient was a man, aged thirty-eight, with no history of rheumatism, or infectious disease, or syphilis, but who had been since 1882 an enthusiastic cyclist, and afterward a well-known long-distance rider. Functional disorder, due to the aortic regurgitation, was remarkably slight.

MENETRIER reported a case of typhoid fever complicated by pleurisy, the interest of which lay in the fact that the pleural serous effusion exerted no agglomerating action on Eberth's bacillus. WIDAL and SICARD had found an agglomerating reaction in the pleural effusion withdrawn at the autopsy of three typhoid fever patients. If a pleural effusion formed rapidly, this reaction might be absent. Thus, it is present in the normal tears of a typhoid fever patient, but is absent in tears copiously produced by the inhalation of ammonia.

In the session of the Biological Society, held December 5, 1896, MAYET reported the results of investigations to determine the *effect of intravenous injections of salt solutions on the red blood-corpuscles*. He found that a solution of sodium chlorid 6–1000 not only did not change the form of the corpuscles, but also did not affect their elasticity. He objected to the addition of sodium sulphate to the solution. The best method of injection is not to denude the vein, but simply to introduce a small hollow needle into a vein which has been distended by a ligature about the limb.

MOTZ examined microscopically thirty hypertrophied prostate glands. In nineteen (or 66.4 per cent.) the glandular tissue was abundant; in ten (33.3 per cent.) this tissue was rare; in one it had completely disappeared. Arterio sclerosis is never found in a prostate in which the glandular tissue occupies two-thirds or more of the section, and this sclerosis is rare even when there is an equal amount of glandular tissue and stroma. It is therefore improbable that arterio sclerosis is the principal cause of hypertrophy of this organ.

At the meeting of the Academy of Sciences held December 7, 1896, BOUCHARD discussed the value of the *Röntgen ray in the diagnosis of pleurisy*. In three patients he had found that the area corresponding to the effusion was occupied by a dark tint in sharp contrast with the light color of the healthy side. This method of diagnosis is not any more certain or satisfactory than the procedures usually employed at present, but it has a great advantage in that it is thus possible to demonstrate to an entire audience the existence, extent, and depth of an effusion which otherwise could only be made out by a personal examination of the patient. Bouchard believes that an examination by means of the Röntgen ray will be found as useful in medicine as in surgery.

Vienna.

PROGRESS OF CREMATION — SUCCESSFUL REMOVAL FROM THE ESOPHAGUS OF A FOREIGN BODY CAUSING SERIOUS HEMORRHAGE — THE VALUE OF A BLOOD COUNT IN CANCER.

ENGERTH read an exhaustive and interesting paper on *cremation* before the Society of Physicians, November 27, 1896. As carried out according to the best methods, the body is placed in an iron receptacle the walls of which are brought to a white heat. Upon the introduction of air raised to about 1000° C., the body is ignited and burns in its own flame. Such a cremating oven costs from $1500 to $2000. The cremation of a single body costs from $2 to $3, but if several are cremated one after another the expense is reduced to about 50 cents apiece, so that the financial as well as the hygienic gain to the inhabitants of large cities is very great. It is interesting to notice that the chemical changes produced by cremation in two hours are almost the same as those produced during fifteen years by burial. Among the Christian nations there were in 1894, 110 cremation societies with 37,000 members, and 53 crematories, 23 of which were in Italy, and 18 in America.

At the session of December 4, 1896, HOCHENEGG presented a patient upon whom he had operated for a *foreign body lodged in the esophagus*. The hasty swallowing of large mouthfuls of food gave rise to intense pain. As no foreign body could be detected by the sound it was inferred that the esophagus had been lacerated. The symptoms continued, and later there were several serious hematemeses, and a swelling developed in the left side of the neck below the thyroid. At operation this swelling was found to be due to an abscess set up by a piece of chicken-bone which had pierced the esophageal wall. The ulceration had eroded the wall of a dilated vein and

so caused the hemorrhage. Hemorrhage from a foreign body in the esophagus is of rare occurrence. In 180 cases it was met with only ten times. In all of these it appeared after the sixth day, and was therefore secondary to ulceration. Of these ten cases only one was saved. The author spoke of the uncertainty of the results obtained by sounding the esophagus and of the value of the esophagoscope in making an early diagnosis.

At the session of the Medical Club held November 25, 1896, BERDACH showed a fifteen-year-old boy who some days before had fallen upon his right shoulder. He could not move the right arm after the accident. The contour of the shoulder was much flattened, but examination showed that there was no dislocation or fracture. Passive motions were free in every direction. The case was one of paralysis, and the interesting question in connection with it was whether it was caused by the accident or had previously existed. The boy had had scarlet fever and diphtheria, but as the paralyses from these are always bilateral and only temporary, they need not be further considered. Careful questioning elicited the information that for some time the right arm had been weaker than the left, and could not be raised above the shoulder. The case was undoubtedly one of acute anterior poliomyelitis, and is interesting as showing how the trauma had suddenly completed the paralysis.

In a discussion on the *practical results of the examination of the blood*, LIMBECK spoke of the great increase in white blood corpuscles which frequently occurs in cases of medullary sarcoma and lympho-sarcoma. The resemblance between the blood in these conditions and in leucemia is very great, so that a differential diagnosis is not easily made. The increase of white blood corpuscles in sarcoma is really due to the existence and growth of the tumor, and disappears with the removal of the new growth. Upon this circumstance rests the significance of the examination of the blood in sarcoma. Some years since, the left leg of a man who had a medullary sarcoma of the tibia was amputated through the knee-joint. It was desirable to know whether or not there were metastases remaining. The high leucocytosis fell after the operation, and was no greater than could be accounted for by the wound. Some weeks later there was a marked increase of white blood corpuscles, although neither in the cicatrix nor elsewhere could a new growth be found. The patient failed and died, and the autopsy showed multiple sarcomata in the lungs.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, November 11, 1896.

The President, DR. J. C. WILSON, in the chair.

J. T. RUGH, M.D., read a paper entitled

EIGHT PRIMARY MOVEMENTS OF THE NORMAL SPINE AS A BASIS FOR THE GYMNASTIC TREATMENT OF SCOLIOSIS AND ALLIED CONDITIONS.

These movements consist in (1) bending forward, (2) bending backward, (3) bending to the right, (4) bending to the left, (5) combining these movements in circumduction to the right, (6) combining these movements in circumduction to the left, (7) rotation of the spine upon its vertical axis to the right, (8) rotation of the spine upon its vertical axis to the left. This nomenclature is in accord with that of anatomists, who describe the normal movements of joints as flexion, extension, adduction, abduction, circumduction, and rotation. Other movements of which a joint is capable are but modifications of these. In all cases of scoliosis there is more or less rigidity of the spine as a result, not of inflammatory or other pathologic condition of the bony or muscular structures, but of the muscular debility, inactivity, and atrophy, and of the long continuance of the malposture. With this rigidity there is also limitation of movement in one or more directions. The exact degree of such rigidity and limited motion can be ascertained by having the patient perform the primary movements mentioned and noting the degree of flexibility of the spine. The guide to the gymnastic treatment is thus obtained, and exercises that will increase the motion in the desired directions can be prescribed. As all movements are limited to the eight cardinal forms, variety can be had only by change of position. By this means total correction of the deformity in some and partial correction in all may be effected. While certain movements are indicated in certain cases, they are contraindicated in others. The relation that the arms and legs bear to the spine are most important as altering the contour of the latter. If the arm is raised or extended, the spine assumes a curve toward the corresponding side. The same result follows movements of the legs in consequence of tilting of the pelvis upon change in the relative lengths of the legs by lifting or moving one of them in any direction. In this way a lumbar curve may be obliterated; or a dorsal curve, by properly adjusting the arms. By a combination of these two the "key-note" positions, or those in which the greatest amount of correction is secured, are assumed, with a better result in treatment. For the purpose of multiplying exercises, all those positions may be assumed that to a greater or less extent obliterate the existing deformity, such as lying prone or supine upon the floor or a table; sitting on the floor, on a chair, or on a stool, with the legs in various positions, or one hip raised; standing with the feet together, the feet separated, one advanced or retracted; standing on one foot; using the rings, trapeze, or bars; kneeling on one or both knees; squatting, and so on.

DR. H. C. WOOD introduced Mr. Lewis A. Tallerman of London, who demonstrated the Tallerman-Sheffield patent local and medical dry-air bath, and showed the method of its application in the cases of two patients from the Philadelphia Hospital, one suffering from saturnine gout, and the other from lumbago. Both were very materially helped, the patient with lumbago, after having suffered so severely as to require aid to get about, and then only with great pain, being able subsequently to the treatment to walk with ease and comfort. The temperature rose about a degree in forty minutes and the pulse increased nine beats in frequency, gaining also in fulness. The temperature within the apparatus was 260° F., and

the pelvis was inclosed for forty minutes. The patient with saturnine gout was able to move joints that had not been moved for a long period of time, and not only those exposed directly to the influence of the apparatus, but also those at a distance and not treated directly. After an exposure of fifteen minutes the man was able to move the worst toe, while the pulse increased twenty beats in frequency, and the temperature had risen 1.4°. The temperature within the cylinder was kept at 260° F. for three minutes; it was then reduced to 255°. Most of the time it was 248°. The apparatus consists essentially of a hollow cylinder surrounded with asbestos, and capable of being closed at either end. The interior of the cylinder, wherein the part to be treated is placed, can be heated by gas to temperatures of 260° and more. Provision is made for the escape of moisture, as well, of course, as for the regulation of the temperature, so that the heat is always practically dry, and thus more tolerable than if it were moist.

MR. TALLERMAN said that among the therapeutic effects of his apparatus are an enormous increase in the activity of the circulation, profuse perspiration of the whole of the body, relaxation of the parts, dilatation of the vessels, and an increase in the bodily temperature of from 1½° to 4° F., with a return to the normal in from fifteen to twenty minutes. In rheumatic affections, rheumatoid arthritis, gout, lumbago, sciatica, sprains, and kindred disorders, pain is relieved or entirely removed. The first treatment is usually followed by relief of pain and freedom of movement. The progress of the disease appears to be arrested and a curative process to be set up. The benefit is not confined to the parts exposed to treatment within the apparatus, but extends to remote parts not directly subjected to the heat. The procedure is entirely painless and rather soothing in its effects, patients manifesting a tendency to sleep during its operation. In chronic cases, when the joints are rigidly fixed by firm adhesions, it has proved wise to treat the limb for a short time in a preparatory way before more active interference is undertaken, and then to break down the adhesions under an anesthetic. If the member is then treated again as soon as the effects of the anesthetic have begun to pass off, the heat exerts an anodyne influence, and the pain subsides in a short time. The apparatus has been employed for several years in a number of large London hospitals, with generally advantageous results.

In answer to inquiries, Mr. Tallerman stated that probably several applications of the treatment would be necessary to insure permanent improvement in cases like those exhibited. To avoid ill effects as a consequence of the treatment, the patients should be briskly rubbed down afterward with a coarse towel. In cases of rheumatoid arthritis, the treatment could be employed four or five times a week at first, and subsequently with less frequency.

There is a special apparatus for the pelvis and for the hand, in addition to that for the leg.

MAX J. STERN, M.D., presented a communication entitled

REPORT OF WORK WITH RÖNTGEN RAYS AT THE POLYCLINIC HOSPITAL, WITH EXHIBIT OF SKIAGRAPHS.

The work was carried out in a large, airy room, darkened, in order that the amount and color of the light in the tubes might be better observed, and because the retina, accustomed to the surrounding darkness, is much more sensitive to an appreciation of the value of an image on the fluorescent screen. The deeper the green light in a tube, and the greater its coincident intensity, the more X-rays are being given off. When the light approaches a yellow color, the visual or fluoroscopic picture is usually better, but the radiographic effect poorer. A chlorid-accumulator storage-battery constituted the source of electricity, while the Ruhmkorff-coil has a spark of eight inches and the regulation spring-vinrator. The Crookes' tubes used are the three-electrode tubes devised by Professor Stein of the University of Chicago. The stand for supporting the tube, as well as all the wires employed, is insulated as perfectly as possible. The subject is placed in a position most favorable for either visual observation or exposure to a plate, as the case may be. The radiographic plate is placed in as close relations with the structures to be delineated as possible. The plate used is one that has been specially prepared for the purpose. The view was expressed that the best plate for the purpose has not been produced, and the suggestion was made that some fluorescent material might be embodied in the emulsion, that by its absorption of, or agitation by, the rays would greatly enhance the activity of the chemic changes in the silver-salts employed. The plates are kept light-proof by packing them separately, first in needle-paper, then in a black envelope, and finally in an outer sealed one of yellow post-office paper. The fluorescope is used to determine the effectiveness with which the tube is acting. In the preparation of skiagraphs it has been found that the more intimate the contact between the sensitized plates and bone, the shorter the exposure required, the less the distortion produced, and the sharper the definition of the resulting picture. On the other hand, the tube must not be held too close to the part to be reproduced, else the picture will be distorted and lack sharpness of definition, and the tissues of the subject may be burned, in degree and severity in accordance with the duration of the exposure and the amount of surface involved. Experience will soon teach the best point at which the tube shall be placed. The necessary exposure will be shorter (1) as the spark is larger, up to a certain point, probably about ten or twelve inches; (2) the more nearly the vacuum of the tube is at the point of exhaustion at which the coil employed will give off the greatest amount of X-rays; (3) the nearer the tube to the proper focal point; (4) the less the density and volume of the tissues in the part to be portrayed; (5) the more sensitive the plate. In printing from the plates, highly glazed papers will yield better results than will most surface-papers. More or less of the detail will be lost in the latter; yet for exhibition-purposes they are better, as the reflection of light from their surface is less, and they can be more readily demonstrated to large assemblies. Any of the good albumin or collo-

dion papers of glossy surface may be used. Much of the beauty of a finished picture is due to the treatment of the plate, and to attain the best results one should first have served an apprenticeship with a practical photographer. While the exposure of a member is under ordinary circumstances unattended with any general disturbance, exposure of the chest is usually followed by acceleration of the action of the heart and alteration in the character of the beat.

DR. ARTHUR W. GOODSPEED called attention to a new and improved tube that he has been using successfully. This is smaller than the tube in common use, and has the quality of maintaining its exhaustion. To accomplish this latter object, some tubes are provided with a third electrode. The new tube referred to is coated with some fluorescent substance which seems to take up on its surface a certain amount of air set free by the action taking place within the tube. If the action is too great, the tendency to raise the exhaustion is counteracted by the setting-free of the gas spoken of; so that, to a certain degree, the exhaustion of the tube may be maintained. If, however, such a tube be worked too roughly—that is, at too high an electromotor-force—the exhaustion is likely to run down. This danger may be overcome by permitting the tube to rest awhile. Dr. Goodspeed has not been in the habit of holding the tube close to the body, and he has seen no bad effects upon the skin. This action may lend support to one of the several theories concerning the ultimate nature of the X-rays. One of these makes the X-rays of the nature of light of very short wave-lengths. Another considers the rays made up of material particles shot off from the exterior of the tube by the bombardment of particles within the tube, these passing through the fleshy material of the subject and producing their impress upon the plate.

MR. JOHN CARBUTT said a great deal of the success in skiagraphy depends upon the development of the plates. The plates from which most of the pictures exhibited were made, were treated with an emulsion containing a fluorescent substance, which causes absorption of the X-rays. Some of the earlier pictures made with ordinary plates were feeble because of the protracted exposure, as, for instance, for an hour or more. Good pictures can be secured in from four to seven seconds, although the average exposure for the hand is from two to three minutes, and correspondingly longer periods for thicker parts of the body. Cathodal rays of a greenish-yellow are best for observation with the fluoroscope, while rays of apple-green are best for photographic effect. With plates made especially for skiagraphic purposes, the development should be continued for from six to twenty minutes. By using celluloid films Mr. Carbutt has been able to make six good negatives simultaneously, showing that glass is less pervious to the rays than celluloid. He has under way experiments directed to the discovery of a silver haloid more sensitive to the X-rays than any at present in use. The longer the radiographic plate is exposed to the X-rays, the more dense the result on the margin, while an overexposure in the camera yields only a thin flat image.

In conclusion, DR. STERN spoke of the desirability of having a plate that could be used in emergency-cases when it is desired to secure a negative at once.

REVIEWS.

FUNCTIONAL DISORDERS OF THE NERVOUS SYSTEM IN WOMEN. By T. J. MCGILLICUDDY, A.M., M.D. Illustrated by forty-five wood engravings and two chromo-lithographic plates. New York: William Wood & Co., 1896.

WE can see, firstly, no reason for the writing of this book, and, secondly, none for its publication. All that it contains, except the reports of cases, has appeared over and over again in medical journals and in monographs and text-books on general, nervous, and gynecological diseases. The work is simply a collection of platitudes, so well-known as to require no elaboration, and the writing is without style, force, or diction. As for the various neuroses, they are quite fully considered, but it is impossible to find anything new, either in the way of theory or symptomatology.

The book-making is fair. The chromo-lithographs are poor, and most of the other illustrations convey no impression of what they are intended to represent.

INFANTILE MORTALITY DURING CHILDBIRTH, AND ITS PREVENTION. By A. BROTHERS, B.S., M.D. William Furness Jenks Prize Essay of the College of Physicians of Philadelphia. Philadelphia: P. Blakiston, Son & Co., 1896.

THIS essay is a critical *résumé* of the causes which threaten fetal life previous to birth, during labor, and during the first few hours of extra-uterine life. The author points out historically the changes that have taken place in the prophylaxis and treatment of these cases. The subject is treated in a lucid and logical manner, and although much of the work is a compilation, as it necessarily must be, the author has rendered a good service to the profession in collecting and arranging his material so admirably.

Statistics of infantile mortality are given, embracing those of the Board of Health of New York City, which show that, between the years 1889 and 1892, 16,000 deaths occurred in New York in newly born children or in children less than a month old. The author gives a study of forty-seven *post-mortem* examinations on newly born infants, and regrets that such examinations are not more commonly made when the opportunity is presented.

The "causes of infantile mortality" are next discussed, and are divided according as the blame must be placed upon the mother, the child, or the accoucheur. The divisions of "before labor," "during labor," and "after labor," are further made. The work concludes with a consideration of measures to prevent the unwilling destruction of fetal life, and a discussion of methods of resuscitation, in which a predilection is shown for Sylvester's method. The essayist has a flowing style, and has made a valuable contribution to the scientific books of the year in the well-printed one before us.